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A few Notes on Foaling Cases and their Sequelæ.

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(Presented to the Lincolnshire and District V.M.A.)

Mr. President and Gentlemen,—In giving you these few notes I am but acting on a suggestion from our secretary, when pressing me to offer something for discussion at this, our February meeting. Seeing that but little time was given to me for its preparation, Mr. Lang very considerately suggested that no elaborate paper would be needed, provided I would bring forward a few notes on some subject of general interest.

It seemed to me, with the foaling season close upon us, that I might do worse than speak on a few matters connected with these cases—matters that have greatly interested me, and which I am sure cannot fail to be of interest to others. I have reached now that time of life when I can hope to be reminiscent with advantage to those whom I may happen to be addressing, for what few little matters I have to speak on are the outcome of some thirty years of experience and of practice. I do not for one moment expect you will agree with me in all that I may say. In fact, one of the very first matters about which I shall speak is one which supplied the *motif* for writing this paper and it obtruded itself on my notice in this way :—

While I was in Edinburgh in connection with the December examinations I got into conversation with a well known and capable Scotch practitioner, like myself possessed of considerable experience in the matters with which this paper will deal. Over one procedure of mine he appeared to be little short of horrified, and for that very reason I have said that I do not expect for one moment you will agree with me in all I may say. It will nevertheless afford us ground for discussion in the course of which I have no doubt I shall learn much myself.

The procedure to which I have referred is my method of dealing with those cases of fœtal dystokia in which the two fore-limbs are presented, but the head of the fœtus laterally deviated towards its flank. For the whole of the time I have been in practice, and following the lines of my father before me, I have dealt with these cases, not by resorting to embryotomy, but by the method of what Fleming terms *forced extraction.*

When, in plain words, I told my Scotch friend that in such cases I simply hitched on the pulley blocks and rope, and set the men on to pull, he could scarcely believe his ears, and remarked that certainly he should never dare to adopt such a method himself. And yet such a method is not without certain merits and advantages, notably its quickness and efficacy.

To begin with you will find it spoken favourably of in Fleming's *Veterinary Obstetrics.* Referring there to certain Continental writers he says :—"These authorities found that if a rounded body—a ball, for instance, to represent the head of a fœtus—is attempted to be pulled through the pelvis of a woman, it requires a force represented by 375 to 441 and even as much as 635 pounds (estimated by the dynamometer) to produce such serious lesions as fracture in the bones or disunion of the symphyses. But it must not be concluded, from this result, that such powerful traction can be practised with impunity in woman. In the first place, the child could not be extracted alive, for its existence appears to be compromised if the degree of traction by the forceps exceeds from 132 to 154 pounds ; and in order that the pelvis of woman could resist such pressure, certain conditions are required which we never meet in ordinary practice ; for instance, the pressure should be equally applied to every part of the bony girdle in contact with the head of the fœtus. But this does not take place with the ordinary forceps, which, even in the hands of the most expert accoucheur, not only acts as a traction agent, but at a given moment is unfortunately transformed into a lever of the first or second kind, whose power is incalculable, and which, resting on two opposite points of the pelvic circumference, may burst it, without the dynamometer showing anything more than a relatively feeble degree of traction.

These observations, though doubtless valuable and significant for the *accoucheur* of woman, are only very indirectly applicable to veterinary obstetrics. Without taking into account the strength of the pelvic osseous girdle, so much greater in the mare and cow than in woman, several other circumstances enable us to understand why this bony circle may, in these animals, resist an amount of strain which would appear to be altogether unreasonable if judged according to the principles which should guide the practice of the human obstetrician. But the veterinarian is in possession of means of traction which give him a great advantage in this respect—an advantage of which the accoucheur has not yet been able to avail himself ; we allude to the cords the former so frequently employs as traction agents, and which can never be transformed into levers, like the forceps."

Again, when speaking of forced extraction, Fleming, after condemning it in the case of the cow on account

of the volume and shape of the calf's head, goes on to say :—" With the mare the case is somewhat different. When the head of the foal is deeply buried towards its flank or croup, reduction is most difficult and requires long and laborious manipulations, which so irritate the organs and exhaust the strength of the mother that death not infrequently results. In most cases, too, the obstetrician is called in when the foal is dead, so that there is no necessity for scruples with regard to it. On the other hand, as we have previously said, the long, thin, and flexible neck and narrow tapering head readily allow the latter to become embedded in the flank, and thus to offer much less resistance than the calf ; while the wider pelvis of the mare offers further facilities."

According to Fleming, numerous instances are on record in which forcible extraction of the foal with the head so deviated has been attended with complete success. One practitioner had eight out of ten cases, and this, without much suffering on the part of the mare ; while another practitioner, stated to have devoted much attention to this procedure, says, so successful and so prompt is it that it should as a rule be adopted in these cases inasmuch as it is not possible to restore the head to its normal position. This same practitioner says :—" Delivery by vigorous traction is, if not easy, at least most frequently followed by success."

This much I have quoted from Fleming in order that I may show some measure of justification for my own practice. I do not care to say exactly how many—but certainly during the thirty years of practice I have mentioned, I have seen at least 6 or eight of these cases in which delivery has been effected in this manner, and, so far as I can recollect, in no instance has forced extraction brought about the death of the mother. The worst that happens is that the mare has difficulty afterwards in getting to her feet (she invariably takes the floor during the operation) and for some time is certainly very, very unsteady in her gait behind. This, however, quickly passes off, and by the end of the second or third day can barely be detected.

I must say here, too, no matter what the form of presentation, I have a positive dread of embryotomy. We all know the horribly dry and frictional sensation conveyed to the arm by the presence in the uterus of spilled blood as opposed to the easy softness of the natural lubricant—the waters ; all this, of course, apart from the two facts that embryotomy takes time —a time full of manipulations exhausting to the mother—and that the blood spilled during the operation very seriously complicates the business of the after-cleansing of the uterus, and so prejudices the mother's chances of recovery. Furthermore, I am always reluctant in the extreme to remove *anything* which afterwards I might wish was present in order to attach thereto a cord or other instrument.

Directly, therefore, I have decided on the form of presentation and made up my mind that the foal's head is doubled back flat against its own side, I explain fully to the owner what I am about to do and the risk we are taking (for, of course, there is a risk) and then proceed straightaway. I first place on the mare's head two stout hempen halters (new ones for preference) one on either side, and firmly secure them so that they do not tighten up to pinch the animal's jaw, afterwards seeing that the mare is tied to some object calculated to take the strain, and low enough not to hang her head from the floor when she goes down. With a further two halters I make safe the protruded fore limbs of the fœtus, make proper knots, attach the pulley blocks and rope and give the word to pull. Six to eight men are necessary, but in certainly less than five minutes the job is over and the mare, exhausted perhaps, quickly recovering—recovering so quickly that always she is on her feet again before the surgeon is ready to leave.

So handled, the case, instead of one of difficulty, is one of extreme simplicity, and what is particularly noticeable in the final stages of the extraction is the neat manner in which the head of the fœtus tucks itself accommodatingly into the cavity between its own last rib and the bones forming its pelvis. The impression conveyed to the onlooker, and he nearly always gives it expression, is :—" Not nearly so formidable as one would have expected."

A second form of anterior presentation to which I would like to draw the attention of the members here present is the one in which the head and the fore limbs of the fœtus are protruded, but delivery still inexplicably delayed. In my early days with a case of this nature I was once lead to a serious error in tactics. It has not happened since. On my arrival at the farm I found the mare on the floor with the foal partially delivered as described, and naturally asked the question " Have you attempted to pull it away ? " The answer I received was in the affirmative. With youthful impetuosity I remarked quickly in effect :—" The presentation is absolutely normal. Nothing remains but to apply additional force and delivery will be effected." But I was wrong. There are cases when no force, however extreme, will dislodge the fœtus so fixed, and this was one. The application of additional force served only to cause the almost instantaneous death of the mother.

When with the fœtus thus presented the powerful labour pains of the mother do not succeed in effecting delivery it is plain that one or both hind limbs of the foal have become so fixed against the maternal pelvis that nothing short of breaking the limb or limbs will remove it. The fœtal hind limbs have become wedged or as they term it in my part of Lincolnshire " scotched " against the " aitch " bones of the mother. My experience has taught me that whenever such a form of partial delivery is encountered, recourse to embryotomy is absolutely essential. Applying slight traction only so as to stretch the body of the fœtus to its fullest extent, it should be severed in its entirety across the loins and the whole of its fore parts thus removed. Afterwards it is a comparatively easy matter to repulse whatever remains

and pick up one by one the hind feet, when the remaining half of the body comes easily away.

I will next deal with that form of fœtal dystokia known to all of us as "breech presentation," and this in its worst form, namely, that where only the tail and buttocks of the fœtus can be felt, and, with a very big slice of luck, the tips of the hocks. Here again, no matter whether I am able or not to reach the hocks, I do not attempt anything in the way of reduction, but simply resort to forced extraction after the manner illustrated in Fig. 143, p. 469, of the Second Edition of *Fleming's Veterinary Obstetrics*. The manner in which I manage to rope the fœtus I can best demonstrate with the two ropes I have here with me.

(*At this stage Mr. Reeks gave a few minutes' demonstration with two ropes which he had on the table before him.*)

With the ropes thus fixed, the pulley blocks are again attached and delivery effected. Should it be found impossible to rope the second thigh in the way thus demonstrated, extraction may nevertheless be proceeded with, and successfully, with the rope round one only. This I have done on at least two or three occasions and I see that Fleming also records similar instances. It is better, however, if at all possible, to rope both.

With these two forms of fœtal dystokia, lateral deviation of the head, and breech presentation, I have dealt specially; for, apart from downright deformity, they are, I am sure, two of the veterinary surgeon's bogeys among the more or less common forms of mal-presentation, and, although I have given only my own methods of dealing with them, I am quite prepared in any discussion that may follow to learn something I may employ to better advantage.

As to the sequelæ:—I intend only to deal with two. First I will deal with the matter of the everted uterus and relate to you my method of dealing with this. To those who have not qualified in the hard school of experience, the very conditions and surroundings met with in these cases appear appallingly hopeless. With modern methods of dealing with them they fortunately are not so. And when I use the words "modern methods" in this connection I wish the members to understand that I can only too well remember the time when chloroform anæsthesia, so far as the horse was concerned, was a thing practically unknown, certainly very little practised, and when the certain advantages of antiseptics as now employed were very little appreciated.

What more fearsome set of conditions to encounter in the cold of an early spring morning, say two or three a.m., than the suffering mare, in a bath of perspiration, with an unwieldy and what appears to be an unmanageable mass hanging from her vulva, with the mare herself up and down, perchance in a filthy crewyard, and every now and again in her paroxysms of pain casting herself violently to the floor or against a wall or a gateway, with a very imminent danger of doing damage to what we know to be an extremely delicate organ; moreover with no skilled assistance, and perchance only the light of a guttering candle by which to work. No medical man, we imagine to ourselves, could possibly meet with a set of circumstances so apparently hopeless, and yet see his way to come successfully through them. Nevertheless, with the means at our disposal we can and do.

In such a case as this the chloroform mask has proved a veritable godsend; and here I may say I never set out to a foaling case without either the pulley blocks I have mentioned or the chloroform mask.

My procedure in these cases is at once to administer the chloroform, having first given instructions that while I am doing this, plenty of hot water shall be got ready. With the mask I have been in the habit of using, and which I have brought here to show you, I have been accustomed to giving as an initial dose as much as three ounces—and this for the reason of bringing the mare to the floor quickly. The sooner insensibility is brought about the less risk of injury to the exposed uterus. If the mare is already down, and it appears plain that she is so weak she can be kept there while being anæsthetised, I use a smaller initial dose.

Before I made myself fairly expert with the handling of chloroform in these cases I made a practice of taking with me the hobbles. Knowing what I know now, however, I say chloroform straightway, with a heavy enough dose to bring the animal rapidly to the floor. Nothing more then is needed in the way of restraint, not even the tying of a single limb.

With the mare down I get to work quickly. With the uterus laid out on sheets or bags, the latter obtained in as clean a state as possible, I have it well bathed with quite warm water (I had nearly said hot) liberally dashed with lysol or creolin. Again, as quickly as possible, I commence reduction. The method, that of repelling it with the closed first, and commencing first with those portions nearest the vulva, is well known to you all. On this, therefore, I need not dwell, except to say I have always an assistant to help, and that I make him follow my own example in wrapping the fist he is using in several layers of the cloths with which we have been cleansing the uterus before commencing its reduction. This, of course, is to prevent injury to the walls of the exposed organ. And, in passing, I may say how surprisingly easy it is for the naked first, especially if a small one like my own, to "pop" through the uterine wall, more especially if in a moment of excitement the fist is inadvertently opened and the flat of the hand used instead.

Immediately reduction is effected I keep my arm inserted for some few minutes in order to feel the uterus float out to take up its normal position. Until this is felt, no case is safe to be left, no matter how slight may be the efforts on the part of the mare to again "pain" it out. It may be there are others here like myself, short in stature, who have difficulty, on account of shortness of arm, in

pushing the uterus sufficiently far back to take up this favourable position. In those cases therefore, when, in spite of my arm being inserted to its full extent, I feel a distinct bulge outwards of any part of the returned organ, I have a pessary made by fitting a round stick into the neck of an ordinary pint and a half bottle, and get an assistant to push this up alongside of my arm. I then direct the bottle to the spot on which I wish pressure brought to bear and give instructions accordingly.

Now as to after treatment. Directly the uterus is in place I insert two, three, or sometimes four pessaries, each containing salol two drams and iodoform one dram with a base of cacao butter. To these, I have for several years pinned my faith as being the very best dressing possible in these cases, and I am still of the same opinion.

After inserting the pessaries I apply to the lips of the vulva a clamp of some sort. I must admit, however, that after one has noted the uterus swim out into its normal position, this latter procedure is hardly necessary, and that I regard it more now a safeguard than a necessity.

With the application of the clamp, or failing that, the adjusting of a truss, I formerly considered my case finished with and either saw the mare on to her feet before leaving, or left instructions that she was to be made to rise so soon as she showed a desire to do so. Of late years, however, I have come to the conclusion that, following the period of exhaustion the mare has been through, it is an advantage to allow her a good rest. Accordingly, my practice now before leaving her, and even while she is still more or less under the influence of the anæsthetic is to induce this rest by the administration hypodermically of a dose of morphia and atropine.

Now as to the after-effects, if any:—If the precaution has been taken of inserting the salol pessaries as described, it is not often that any serious infection of the womb takes place. If any untoward change does occur it takes the form, usually, of the accumulation of a thick glairy discharge, somewhat resembling strangles pus, in the cavity of the uterus, the uterus fails to close, and the patient's temperature rises. What I have found to act as a positive charm in such instances is the injecting by means of a Read's pump, of about four gallons of warm water, containing approximately a pound of common salt and an ounce of carbolic acid. This injection I repeat three times daily. So soon as the fluid has been injected, I have the animal walked about. This almost invariably has the effect of causing her, almost involuntarily it would appear, to expel the greater part of the injected dressing, which, of course, is the very thing we wish. When a case is met with in which this desirable occurrence does not take place, I syphon out the fluid by means of the tubing of the Read's pump.

This I do as follows:—I see to it that the tube of the pump is filled from end to end with water. While it is so filled I have both ends of the tubing held at the same height while the pump is removed. My assistant I direct to cover the hole of one end with his finger and then to hold this end in the neighbourhood of the floor. The other end I then carry into the uterus and dip as deeply as possible into the pool of fluid found there—then give word to my assistant to allow the water at his end to run. In a very few minutes the uterus can by this means be drained dry.

Since adopting this saline *cum* carbolic acid irrigation the sequelæ of foaling cases generally have lost for me a great deal of their former dread. Whether after a difficult foaling; whether after replacement of the everted uterus; or whether following on the removal of the retained after-birth, I certainly use first the salol and iodoform pessaries, for very frequently this is all that is necessary. In other words, if on the occasion of my second visit I find the patient's temperature normal and other signs favourable, then I leave well alone and do nothing more, probably, however, leaving word that I will call again on the following day and see whether or no these favourable signs are continuing. On the other hand, should my second visit show a rise in temperature and other indications of fever—then the saline irrigations. From the very first injection the temperature drops, and other symptoms of *malaise* rapidly subside. The case, in fact, gives me no further anxiety.

Now as to my method of dealing with retained after-birth. I will be as brief as possible, for already I feel I am trespassing on your indulgence and that this paper is growing too long. First as to the time that has elapsed since the act of foaling before I attempt removal. I may say here that in my own district if the membranes have not come away naturally within a very few hours after the birth of the foal, almost invariably I receive word that "the mare has not cleansed." On receipt of such a message I attend at once. This, more to allay the natural anxiety of the owner than from any fear on my own part that a few hours' retention may cause mischief. In very nearly every instance the retained membranes may then be removed (and that without the insertion of the operator's arm) by the method I now describe. It may appear somewhat crude, I allow. But the crudity is only on the surface and the method is successful. No doubt many of you have seen it done. I simply take two sticks, such as two stack-pegs, enclose the membranes at their lowermost protruded extremity between them, and then roll upwards towards the vulva. The next step, and with this method it is the important one, consists in rotating the two sticks, together with the membranes they enclose, in a circular manner from left to right or from right to left, whichever the operator may wish, in order to twist cord-like the membranes on the proximal side of the two sticks. In fact, in the latter stages of the removal of the membranes by this method the membranes as they are pulled outwards, issue from the vulva in strands, having an appearance exactly like that of a thick rope. This rotation continuously from

one side to the other serves two purposes. By twisting them rope-like, it so strengthens the membranes to be pulled on that there is very little fear of tearing them, and it serves also the very useful purpose of unpeeling from the uterine walls the attached membranes.

Provided pulling is commenced slowly, and additional force exerted by the operator only after the lapse of some considerable time, it is remarkable the degree of traction that can be applied without causing damage. But, and one cannot too much insist, "Go slowly" is the word. I have sometimes been so long as a quarter of an hour or 20 minutes before "things have begun to come." The first thing that happens is that the mare herself begins to help. During the first stages of traction she may take but very little notice and may even continue to feed at the manger. Sooner or later, however, she commences to pain. And then, within a few minutes, if the after-birth by this means is removable at all, there comes from the vulva a portion of the membranes a dull purple in colour, as against the white of the ubilical cord on which we first commenced traction.

Directly this is seen the sticks may be dropped, and the purple coloured membrane pulled on with the hands, taking care not to exert traction on one spot alone, but to take turn and turn about in various places round the mass of membrane now protruded. In a very few minutes it will be found that in one position it is coming away much more easily than in others, evidently unpeeling without difficulty from the uterine wall. This the operator recognises at once by reason of the fact that no sensation of tearing is conveyed along the membranes to his fingers. Finally the membranes begin as it were to *trickle* from the lips of the vulva, no pulling is needed, in fact it is better at this stage that the weight of the hanging portions should be lessened by their being held upwards, until with a "flop" the last portion drops cleanly from out the vulva on to the operator's hands.

If the case is seen early, nothing more then is really necessary; but, in order that nothing shall be left to chance, I insert two of the salol and iodoform pessaries.

Apparently easy, this is procedure which calls for considerable skill and patience on the part of the operator, and its apparent easiness I always decry to the looker-on, warning him that such a method in the hands of the untrained is likely to be productive of grave mischief. I know in fact of one or two cases where evertion of the uterus has followed on traction unskillfully applied. But this not of late years. My clients have taken my advices to heart and do not now attempt it.

Thus far I have described the case that is easy. Now and then, however, there are cases in which, even with considerable traction, the membranes by this method fail to come away. When that occurred I formerly used to insert my arm and with the hand detach the retained portions. Of latter years I have not done this. I do not think it wise. There is always more or less hæmorrhage, and the blood-smeared arm in and out during the operation is only too apt to carry in infection. I much prefer to explain to the owner that in a few hours' time certain changes will have occurred between the retained membranes and the uterine walls and that after this has occurred extraction of the membranes will be a much more easy matter. And such is the case. On the occasion of the second visit, if the mare has not already voided them, the membranes come away without the slightest difficulty, and the insertion of a couple of salol and iodoform pessaries again completes the case. Knowles, of Wisbech, it was whom I first remember advocating this period of waiting. I can certainly testify to its wisdom.

I have ended here on a note of simplicity possibly conveying to my hearers the idea that with the insertion of the salol pessaries these cases are finished with. Very often they are. But in *none* of the cases with which I have dealt in this paper do I allow myself by the apparent simplicity of the circumstances to be lulled into a state of false security. No matter how sure I may feel that my case will take no further harm I am always just as sure that one can never be certain what untoward prank Dame Nature is likely to play. Accordingly, I make a practice of following up my case for at least another day or possibly another two days in order to make what is already sure doubly so.

This, gentlemen, concludes my paper. In no way have I attempted to go into great detail. I have simply given to you as briefly as possible my own method of procedure in a few of those cases one or other of which the veterinary surgeon meets with every foaling season that he lives. And while I *am* concluding, allow me to say that whatever may be your criticism I have, I am sure, related to you as fearlessly and as honestly as possible a few of those little practical matters that I have found useful, and which have come to me very, very gradually, and as a result only of many years' experience at the game. With some of it you may disagree. It is possible, for instance, that in some respects I may have fallen into a rut and that other and more modern methods might better take the place of some I have related. All this I shall learn in the discussion. I only hope, gentlemen, that you will discuss the paper as freely and as fearlessly as I have endeavoured to give it to you. I thank you for the hearing you have given me. (Applause.)

Discussion.

Mr. Knowles, in opening, and as the oldest member of the Association in point of years, said he congratulated them upon the fact that Mr. Reeks had resumed membership, and he also congratulated him upon his very able and practical paper. He had had experience in a breeding district very similar, he should think, to that of Mr. Reeks, and he would like to make a few remarks as to the result of his own observation. If the mare was a good roomy mare, and the foal not too large, and had not slipped too far back, delivery could be brought about by traction, and sometimes without embryotomy. One had to find the eye, for instance, and get the hook in it, or if they

could remove the shoulders there was little difficulty. He agreed with the speaker's remarks regarding embryotomy, but he had always been able to rope the hind feet before cutting the animal in half. One thing he would warn them against, they must not slash right through the skin and everything, but make incisions so that the skin fell over the embryoted part, and the wall of the uterus would not be injured by, say, portions of the vertebræ which might project. There was a case like that recently at Sleaford where a gentleman was summoned by the R.S.P.C.A. for attaching a horse to the fœtus and trying to draw it away. A veterinary surgeon found that the hind feet were caught. He came to him (the speaker) and he gave his views, with the result that the farmer got off by paying expenses.

Breech presentations had always been his bugbear. He did not like to be told, when leaning out of his bedroom window at two o'clock in the morning, "there's only a tail there." Supposing the hocks were not in reach, and they could only feel the round rump and tail, he had always tried a steel hook, as thick as his finger, and pushed it into the foal's anus and fixed it into the pelvis or a place like that to get the animal away—that was provided the mare was roomy enough. Sometimes, however, they would have to shoot the mare. Mr. Reeks' methods were very much like his own. In the case of either a cow or a mare, he got its hind part higher than the fore, whether it was standing or lying down. They would find the uterus going back much easier. The plan with the bottle was a good one. He had a case some weeks ago where a cow had calved and put her uterus out. He was getting it back and felt his finger go through the wall of the uterus. Curiously enough she went on well. It happened on Sunday; on Tuesday she was chewing the cud, and got quite well. He did not think a mare would have done so under like circumstances.

The PRESIDENT also congratulated the reader of the paper. His remarks were most instructive, especially as they were at the approach of the breeding season. With regard to a head presentation, when the foal was hard to move, he had sometimes found that by getting the line round one leg, the animal would come away sideways, better than by presenting the full width of the shoulders. It was a good plan, too, to take one leg away.

Mr. KNOWLES: Take the head off next time.

Mr. HICKS referred to dropsical cases.

Mr. KNOWLES said he had never had one yet.

Mr. LOCKWOOD said he was particularly interested in the notes dealing with anterior presentation where they got the presentation of the fore-limbs and the head turned back. It was his first experience of such a thing last year. He was trying to get one of the fore-limbs off, when, much to his surprise, the whole thing came away, and the mare went on well. For cleansing, Mr. Lockwood continued, he always used a syphon and not a Read's pump. He had not tried the pessaries to any extent, but a solution of lysol and syphoned it out. He found he had to douch a mare three days in succession. With regard to putridity in the fœtus, he had had a case where he had to take the foal away bone by bone, and bit by bit, and the smell was terrific. The mare got better.

Mr. KNOWLES: How long gone was the foal?

Mr. LOCKWOOD: About full time. The mare was a greasy old subject.

Mr. KNOWLES said there were cases where it was better to have an assistant; the operator inserting his right arm, and the assistant his left, so that they could work together to adjust the animal for removal.

Mr. REEKS: It is another way of using the repeller.

Mr. HICKS: It can be done with the crutch, but it is safer to have an assistant.

Mr. LANG said he had one of Fletcher's improved instruments, and there was no difficulty in getting it round the neck. With this he had been able to cut a calf—a monstrosity—into eleven pieces, without any pressure on the mother. Regarding the mare with a putrid foal, he had an idea that when the fœtus got like that it was in a sealed bag, as it were, and the mucous membrane became impervious to the septic matter.

Research into Diseases of Animals.

REPORT OF THE ADVISORY COMMITTEE.

We give below, from the *Live Stock Journal*, a more comprehensive abstract than appeared in our last week's issue of the report of the Advisory Committee appointed last November to "report on the facilities now available for the scientific study of the diseases of animals, to indicate what extension of those facilities is desirable in the immediate future in order to advance the study of disease, whether in animals or man, and to advise as to the steps which should be taken to secure the aid of competent scientific workers in investigating diseases in animals."

The problem of the scientific study of animal diseases cannot be approached solely as regards the United Kingdom. It affects every part of the Empire, and, though the diseases differ with conditions of climate and locality, the trade in live stock makes the problem in reality a single one.

The importance of the problem may, perhaps, be gauged by the fact that the estimated value of cattle, sheep and pigs in the United Kingdom on June 4th, 1913, was probably from £180,000,000 to £200,000,000, and in 1920 from £400,000,000 to £450,000,000. The total value of British cattle, sheep and pigs exported in 1913, as given in the trade returns, was £2,272,566, and in 1920 was £4,819,401. The value of cattle, sheep and pigs re-exported was £129,252 in 1913 and £78,693 in 1920. It is not possible to form an estimate of the annual loss from animal disease in the United Kingdom, but it must be very great. The Scottish Animal Diseases Research Association, a body fully representative of stock-owners and herdsmen in Scotland, estimate the annual loss from certain specified diseases in that country at close upon £1,000,000.

The Committee point out that the losses in England and Wales are probably four ro five times as great as those experienced in Scotland. In the Union of South Africa the value of stock is estimated at £100,000,000 and the annual loss from diseases at several millions.

The importance of the problem extends, however, far beyond the loss in wealth brought about by preventable causes amongst live stock. Some of the diseases of animals are directly communicable to man, but there is another aspect of even greater significance. The problem of disease and of health, whether in man, animals or plants, is in reality one problem. The study of disease, it is true, has become highly specialised in its different branches, but advances in animal pathology may interact on and profoundly influence human pathology, and the reverse is equally true. Pasteur worked as directly for the prevention of animal disease as for the good of human beings. Koch's discovery of the tubercle bacillus had an equal interest for the veterinary and for the medical profession.

Moreover, the greater part of our knowledge of human medicine, whether curative or preventive, is based either upon experiments made upon animals or upon the use of other scientific methods identical with

those employed in veterinary science. It is in the application of scientific discovery to human beings, to animals, and to plants that specialisation is inevitable. This does not, of course, mean that specialised knowledge is not of great value to the investigator.

The effect of the Committee's finding as to existing facilities for study of animal disease is that there is not nearly enough opportunity for research.

"Having regard to the position held by the United Kingdom in the stock-breeding world," says the report, "the facilities for research existing at the five veterinary colleges constitute a national disgrace. Veterinary colleges should occupy a position in regard to veterinary research similar to that held by medical schools and hospitals in regard to medical research.

"Whilst it is true that consideration of the development of veterinary research was, so far as the Commissioners are concerned, interrupted by the war, the present position is that the sum allocated to veterinary research is trifling in comparison with the sums set aside for medical, agricultural and fishery research. The Research Institute in Animal Pathology at the Royal Veterinary College received for the year 1920-21 an increase in its maintenance grant insignificant in comparison with those sanctioned for many other agricultural research institutes. For reasons unknown its staff is not included in the research 'service' scheme."

Grants for special veterinary researches at various centres have been made from time to time, and in 1914 the Commissioners were prepared to set aside annually a sum of £2,000 to be allocated for this purpose on the advice of a special Advisory Committee. Grants for similar purposes have also been made from the Agriculture (Scotland) Fund, usually on a pound for pound basis. Account should be taken of facilities existing at the universities, medical schools and other scientific institutions, at the Brown Institution, and, for the investigation of nutritional diseases, at the Cambridge and Aberdeen Research Institutes in Animal Nutrition. There are laboratories, devoted more especially to administrative research, attached to the English and Irish Departments of Agriculture and to the Royal Army Veterinary Corps.

With regard to extension of existing facilities and training of investigators the report complains that the absence of any established career for the veterinary investigator in the United Kingdom, and the fact that so small a number of posts is available in other parts of the Empire, has prevented full advantage being taken of the Development Fund studentships for holders of the membership diploma of the Royal College of Veterinary Surgeons. The studentships to enable honours graduates in science of British universities to obtain the veterinary qualification have never been taken up.

"Support for veterinary science from private benefactors," continues the report, "and from farmers and owners of stock has been meagre, though the launching of the plan contemplated by the Commission in 1913 might have altered this state of affairs."

The recommendations of the Committee for improving the conditions of veterinary research are mainly as follows:—

(1) Workers of proved capacity in the Institute of Animal Pathology at Camden Town should be immediately granted salaries on the same scale as that adopted in the case of other workers in Agricultural Research Institutes and admitted to the benefits of a superannuation scheme. (The report adds, however, that a direct Government service is not contemplated.)

(2) Increased opportunities should be offered for co-operation between veterinary and other investigators, and for the free interchange of workers in medical, veterinary, botanical and other laboratories.

(3) A capital grant should be made at the earliest practicable date from the Development Fund for new laboratories at the Institute of Animal Pathology, Camden Town. The annual maintenance grant of the Institute should be immediately increased.

(4) The creation of the Scottish Animal Diseases Research Association and the assistance to it already recommended by the Commissioners is welcomed. Whatever the fate of this particular scheme, permanent facilities on an adequate scale should be provided in Scotland.

(5) Suitable facilities for research should be placed at the disposal of the Royal Army Veterinary Corps.

(6) A sum should be set aside annually by the Commissioners for special researches into animal diseases, whether by veterinary or non-veterinary investigators.

The report suggests that the surest foundation for the creation of a cadre of research workers will lie in the improvement of professional veterinary education, and Government assistance to the veterinary colleges should be substantially increased after full inquiry as to their adequacy in point of accommodation and situation.

To enable selected men who have completed their preliminary scientific education to be trained in research methods, the report urges that three research studentships should in the early stages of the scheme be offered annually of the value of £300, tenable for three years. Candidates should be nominated by the heads of institutions and selected by the co-ordinating body referred to below. Preference should be given to those possessing university degrees.

Those entering civil or municipal service at home or abroad should receive post-graduate instruction, State assistance being given to the institutions concerned with their training. In the case of those going to tropical countries a year's training should be given, of which, if possible, at least six months should be spent in a laboratory in the tropics.

It is suggested that facilities should be given to members of the Royal Army Veterinary Corps for training in research and for study leave. Closer collaboration between officers in the Royal Army Medical Corps and the Royal Army Veterinary Corps is desirable.

In conclusion, the Committee suggest that a Diseases of Animals Research Committee (or Board) should be appointed by the Development Commission, all

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applications for advances from the Development Fund for research into diseases in animals being referred to it, and the Committee being annually informed of the total amount available under this head. The Research Committee should consist of not less than seven nor more than ten members, chosen for their personal qualities and special knowledge. The majority should be men of science, but a member with a knowledge of stockowners' needs must be included, and a full-time paid secretary with scientific training should be appointed.

Some Notes of Cases met in Country Practice.

RESUMED DISCUSSION ON PAPER PRESENTED TO THE ROYAL COUNTIES V.M.A. BY J. K. BAXTER, M.R.C.V.S.

Mr. MALE said he had been very interested in Mr. Baxter's paper, which was the kind of paper that was required: notes written by a practitioner when he saw the cases, without any elaboration. Such a paper formed the basis of a good discussion. He did not think a man should be expected to write a treatise, which was too much of an undertaking for a busy practitioner, but if a member would write notes on cases he had met in his own district it would help everyone. Mr. Baxter divided mammitis into several classes, but he did not know whether that division was sufficient. Personally he would be more inclined, for the purposes of definition, to divide mammitis into the following heads, (1) acute, (2) chronic; acute mastitis divided into (*a*) phlegmonous mastitis, *i.e.*, an inflammation of the stroma and interstitial tissues, and (*b*) parenchymatous mastitis, an inflammation of the secreting part of the glands, and that again into catarrhal, pustular and gangrenous. Then there was contagious mastitis. Chronic mastitis included tuberculous mastitis. He did not quite know under what heading Mr. Baxter put the acute case that he described, but he thought it was the acute parenchymatous mastitis, which was of a pustular or gangrenous nature. The two things were rather different. The pustular mastitis usually came on as a secondary condition to the catarrhal, and was due to *streptococci* and *staphylococci*, and was not so fatal as the gangrenous form, which seemed to be more or less of a specific mastitis. It came on very rapidly and caused the death of the animal in a very short time, except in those cases where there was a separation of the dead tissues from the living. He agreed with Mr. Baxter that it was a most difficult thing to treat, in fact, he had found no treatment of any use. The procedure that had been advised in many cases was to slaughter the animal. Then the question arose whether the animal was fit for human food, and he did not think it was. He did not think it was possible to advise the owner in a case of gangrenous mastitis to have the cow destroyed for human food; there was a great deal of septic infection, and the meat could not be good for human food, even though the cow was slaughtered in the early stages. Mr. Baxter spoke of the character of the secretion gradually altering from straw coloured, almost clear, fluid, to claret colour, mixed with varying amounts of pus, and said it was the thick pus which in the worst cases occluded the teat duct, rendering any relief of the affected quarter through that channel impossible, and leading up to gangrene. He did not know whether when there was thick pus there was also gangrene; he thought the gangrene was a specific thing and that when thick pus was obtained the case probably would not die and probably would not go on to gangrene. If a good drainage could be made by cutting off the end of the teat and massaging the udder, and the discharge got away and injections made into the teat—which were very beneficial in a pustular condition—there might be a recovery. With regard to giving Epsom salts in large doses, he agreed with Mr. Baxter that it did cause a great deal of depression. Animals occasionally were given very large doses when they had the symptoms that had been described. If nux vomica or strychnine and ammonia compounds were given with the salts, there was not the same amount of depression. It was a mistake to give too much Epsom salts. Any purgative if given in too large quantities would cause very great depression: even linseed oil and castor oil would do so. He was a great believer in the old-fashioned black treacle, which acted as a food as well as an aperient, and sometimes did more good than all the Epsom salts. With regard to injections into the udder, his own experience was that hydrogen peroxide was about the best, about 1 to 7, or chinosol, which answered better than anything else, especially in pustular cases. With regard to scouring calves, he could not say that he had used formalin, but he had used potassium permanganate and potassium chlorate and had had some very good results, especially in white scour. Potassium permanganate was very good. With regard to the remarks that had been made on the paper, he was sorry Mr. Coleman was not present, because there were several things he wanted to ask him about his cases, especially about the young beasts from six to fifteen months old, a large number of which were showing mammitis and which he treated by injecting the udder with proflavin and citrate of soda and hydrogen peroxide, and also about the organisms which were found in the udder. He had not been aware before that the *bacillus enteritidus* and the *bacillus coli* were common inhabitants of the mammary gland, as Mr. Coleman mentioned in connection with his cases.

Mr. T. LEPPER said he had had experience of mammitis, as he, with other country practitioners, had a good deal of that disease to treat. He thought Mr. Baxter's paper was a most able one on the subject, and he had been very interested in reading it and agreed almost entirely with the treatment which was adopted. His experience was that some of the worst cases of mammitis were found in cows which were dry in the summer time and not in milking cows at all. He lived in a grazing district where acute mammitis of a septic form was often found in the summer time, and the cases were extremely unsatisfactory to treat. If there was a case of septic mammitis in an animal which was being fattened on good grazing land, he thought it was to the advantage of the farmer to have it destroyed, because, although the treatment might be effectual at the finish, the animal wasted tremendously and the first loss was very often the least. In his district he had been specially fortunate in getting very few cases of infectious mammitis; he had not seen a bad case for some years. He also would have liked to ask Mr. Coleman one or two questions, especially in connection with the removal of the udder, which he could not understand, because it seemed to him that unless there was mortification setting in it would be practically impossible, as the hæmorrhage must be tremendous. He did not know how the hæmorrhage could be stopped, because it meant cutting into what might be called a shiny bright surface, and it would be practically impossible to take up the vessels. Apparently Mr. Coleman had had success, but it would be interesting to have a demonstration at one of the meetings. With regard to mag. sulph., he did not think it was such a poison. He had used it for a great many years, but he usually used ¾lb. mag. sulph. and about 4oz. of flowers of sulphur with a gramme of nux vomica and about ½oz. of ginger. He had given that in two doses at least without any ill effects at all.

Mr. J. VERNEY said he had been especially struck by the facility with which Mr. Coleman removed the udder. He had never had to do it in his own practice. He had had a quarter of the udder cut out and he had helped it out a good many times. He had a pupil once who was the son of a veterinary surgeon in a large dairy district in Cheshire and he said that when they got a case they whipped the tip off straight away to start with, close to the udder, and he himself had done that several times with very good effect. He did not think Epsom salts was poison, but it was very often given in larger doses than it should be. If mixed with sulphur—3 parts of magnesia and 2 of sulphur, with a little ginger—it was a

very good febrifuge indeed and did not seem to have any bad effect on the cow at all. In addition to that he had frequently given a couple of drachms of calomel with half-an-ounce of aloes in a fever drink and had found that had a very good effect indeed. With regard to the application to the udder, some people recommended fomentations, but latterly he had used the unction of oleate of mercury, which was a very good antiseptic and softened the conditions very much. His old partner, Mr. James, who was in cattle practice for a good many years, always used the biniodide of mercury, about the size of a half-crown, until the whole quarter was covered, and had very good results. He had never had occasion to remove the udder. He thought the removal of the teat right up to the udder gave a very good drainage and very often minimised a good deal of the pustular effects which followed and any septic effects which might take place.

Captain DUNN said he had lived in Aberdeen and there it was possible to give much larger doses of medicine, aloes, for instance, than in the south. It was possible to give 9 drachms without any trouble. With mag. sulph., 2lbs. was nothing to a cow. Scotch cows were like Scotch people, pretty hard, and could stand a lot. With regard to gangrenous mammitis, it seemed to him to be a specific disease. He had had a considerable number of cases lately and some of them had died within twelve hours. Irrigating the teats in mammitis had had good results and hydrogen peroxide also had wonderfully good effects.

Mr. BAXTER, in reply, said he regretted Mr. Coleman's absence, and wondered how he recognised the specific organisms. With regard to heifers' quarters, he would like to learn how Mr. Coleman succeeded in injecting the material into them at all on account of smallness of teat. Also, with regard to the vaccine for vaginitis, he would like to ask him whether the uterus was also affected. It seemed to him that in simple vaginitis it was possible to do quite as much good with pessaries alone. He had not tried autogenous vaccines and he would like to hear if others had tried them besides Mr. Coleman. It appeared to him that the cases were so urgent that there was not time to get the vaccines prepared. Mr. Coleman seemed to think that he left the quarter to slough off without interfering with it at all, but he removed the teat and incised before gangrene set in, but not removing the whole udder, which he did not think was often necessary or advisable. On the question of mag. sulph., if Captain Dunn gave 2lbs. without any nux vomica or anything else it was an extraordinary dose. It was quite all-right if something was used to help it along, but mag. sulph. alone in frequently repeated large doses often gave rise to depression, so that the animal could hardly move about at all. With strychnine or nux vomica it could not be objected to. He was very glad to hear Mr. Willett had been using barium chloride, because a good many people seemed to be rather afraid of it, and the text books also seemed to be. It had always acted very well with him, but he had not repeated the dose very often. Major Simpson seemed to think that vaccines must be specific. They had far better be, but there was no time to get an autogenous vaccine prepared before the case became gangrenous. He did not mean to make any hard and fast divisions in the types of mastitis, but he quite agreed with Mr. Male that they should be divided up a little more. He simply gave a general account. There was a paper read by Dr. Savage before the Mid-West Society some time ago in which he said that in his opinion carcases of animals dead from mastitis were not fit for human food. He did not quite agree with Mr. Male that thick pus did not lead to gangrene; one often got thick pus continuing for years without any trouble at all, but sometimes in acute cases it stopped up the teat and gangrene followed. He would like to know what strength the potassium permanganate was that was used for calves as a cure for scour.

Mr. MALE replied that it was made about port wine colour, and two wineglassfuls were given twice a day.

Mr. BAXTER said Mr. Lepper seemed to have a good deal of trouble with mastitis in dry cows, probably because they had not dried off properly.

Mr. LEPPER remarked that that was certainly often the case. Perhaps there would be half-a-dozen in one place and they were tried to be dried off a bit, and they were very often some of the worst cases.

Mr. BAXTER quite agreed that it paid better to slaughter them as a rule. He had very little infectious mammitis in his district, in fact, he could only remember one outbreak where it travelled much from cow to cow. He would like to know whether Mr. Verney had found any blistering from biniodide.

Mr. VERNEY said he had, but it subsided very quickly. He did not trouble much about blistering.

Mr. LEPPER asked whether that would be in chronic cases.

Mr. VERNEY said he used it in acute cases. It was a very good counter-irritant.

Mr. LEPPER enquired if it was the same with oleate of mercury also.

Mr. VERNEY replied in the negative.

The PRESIDENT desired to know if it was used in one spot of the size of a half-crown.

Mr. VERNEY said that was so. He did one or two spots and then some more until the whole thing was covered. The gland then became harder and dried up. In most cases a quarter was lost, whatever was done, and that was the reason why he did not hesitate to take a teat off right close up to the udder, destroying the teat duct. In those cases he did not use biniodide of mercury at all.

Court of Appeal.

WARRANTY ON SALE OF A COW BY AUCTION.

Frankland v. Smith.

(*Before the* MASTER *of the* ROLLS, LORD JUSTICE WARRINGTON, *and* LORD JUSTICE SCRUTTON.)

This appeal from a decision of the Divisional Court (Mr. Justice Horridge and Mr. Justice Sheariman), on December 8th last, raised a question on the proper construction of certain conditions of sale of cattle used by the Hellifield Auction Mart, Limited.

The plaintiff became the purchaser of a cow which had been sent to the mart by the defendant for sale, and which was sold on March 1st, 1921, for £35. The cow was apparently in perfect health at the time of sale, but some days later it was taken seriously ill, and on March 11th it died. A *post-mortem* examination was held, and it revealed that at some previous date, probably from two to three months before the sale, it had swallowed a piece of wire, and this wire, after travelling into its stomach, ultimately penetrated its heart and caused its death.

The plaintiff claimed damages for breach of warranty, and the County Court Judge gave judgment in his favour, but the Divisional Court reversed this decision, and the plaintiff appealed.

The conditions of sale of the Hellifield Auction Mart were divided into two sections. The first section applied to home cattle, and clause 1 was as follows:—

> Every animal (except as undermentioned in this condition) sold at this mart is sold under warranty by the owner to be sound and healthy, and any animal not answering to this warranty shall be returnable by the purchaser provided that he give to the seller notice in writing of such breach of warranty . . . within five clear days from the day of sale.

The exceptions did not apply to this case.

Clause 3 dealt with certain specific defects. By clause 4 any dairy cattle entered for sale and suffering from any grievous fault or complaint not discernible at the time of sale and sold as sound and healthy for upwards of £8 were to be returnable to the seller upon notice by the buyer in accordance with clause 1.

Clause 5 applied to Irish cattle only. By the general conditions, clause 8:—

> Each lot shall on the fall of the hammer be and remain in every respect at the absolute risk of the purchaser

thereof (subject to the third and fourth conditions) and shall be removed from the mart within two hours after the sale, at his expense, and shall be taken with all faults and errors (if any) of description.

Mr. Langdon, K.C., and Mr. W. A. J. Rowlands appeared for the appellant (the buyer), and Mr. Holman Gregory, K.C., and Mr. W. H. Moresby for the respondent.

The Court, without calling upon counsel for the respondent, dismissed the appeal.

JUDGMENT.

The MASTER of the ROLLS stated the facts, and said that he did not mean to say that the case was a clear one, as nothing could be clear on such inartistic and badly drawn conditions as those before the Court. The question was as to the extent of the warranty of soundness of cattle sold. In his opinion, although condition 1 stood first, the proper way to read the conditions was to begin with the general conditions, the third of which was condition 8. It had been argued that the final words meant "faults of description and errors of description," but he preferred to read the words as "all faults and errors of description," as in Ward v. Hobbs (4 A.C., 13). *Prima facie* the sale was to be a sale with all faults, and he supposed that a piece of wire inside a cow was a fault. The cow came within the description of cows not excluded from condition 1, and, if so, it also came within 4. In his opinion condition 1 did limit the very wide reach of condition 8. The logical way to consider the question was to read condition 8 first, and then see to what extent condition 1 affected it. The two conditions must as far as possible be read together. The conclusion that he came to was that the effect of the two conditions was that all lots must be taken with all faults, except that all animals sold under warranty, in accordance with clause 1, could be returned by the purchaser, if discovered to be defective, within five clear days of the day of sale. If the animal was not returned within five days of the sale, then clause 8 applied, and there was no breach of warranty. In the present case the cow was not returned, and therefore the decision of the Divisional Court was right, and the appeal should be dismissed.

LORD JUSTICE WARRINGTON and LORD JUSTICE SCRUTTON delivered judgment to the same effect.

Solicitors.—Messrs. Lewis and Yglesias, for Mr. E. H. Vant, Settle; Messrs. Leonard Bingham and Sharp, for Messrs. Holden and Rawlinson, Blackburn.—*The Times*.

Diving Ponies.

PERFORMING ANIMALS COMMITTEE.

The Select Committee of the House of Commons on performing animals met again on March 21st to hear evidence, Brigadier-General Colvin presiding. The first witness was Mr. Everard B. Calthrop, consulting engineer, and author of "The Horse as a Comrade and a Friend."

Mr. Calthrop claimed that sometimes horses had intelligence superior to that of men. There was no need for the use of cruelty either in training horses or in putting them through their performance. The use of the whip in circus rings was not to hit the animals but to indicate time. He had seen performances by animals in all parts of the world, and the only occasion he remarked any cruelty was once in Berlin, and even there the audience strongly protested against it.

Mr. Calthrop told of a troupe of four diving ponies, which at their performances went up an inclined plank to a diving board inside the circus tent above a tank. They were not forced in the slightest degree. On getting to the diving-board the pony would survey the audience calmly and excite their interest by going to the edge of the board and drawing back. Then each in turn would dive into the tank. The first thing they did afterwards was to trot up to the trainer for lumps of sugar and then trot round the ring, "showing off" to the audience.

Answering the Chairman, Mr. Calthrop said those particular ponies acquired the art of diving quite naturally. They were brought up on a ranch, and one of them first started to dive and swim in the river. He seemed to have taught the others.

Mr. Calthrop said that it was impossible to train dogs by cruelty to do things voluntarily. He did not think it was possible to train wild animals without coercion, although when once trained they would probably do their performances with pleasure. Domestic animals, however, could only be trained by kindness, and they entered into their performances with zest and pleasure. That was his whole experience. Usually the wild animals trained were cubs born in captivity. It was about a thousand to one that a fully-grown lion could ever be trained at all. He had tried to train jackals in India, and had them about six months, but it was hopeless.

Mr. Seddon: You have had a life-long experience with animals of all kinds. Is the knowledge you have gained that cruelty in training defeats its own object?—Absolutely.

The Committee adjourned till the following day, when Dr. Chalmers Mitchell, the Secretary of the Royal Zoological Society, was the chief witness. He said that he had been pressed by both sides in this controversy to give evidence on their behalf, but he preferred not to accept the invitation of either. He attended now at the request of the Chairman, Brigadier-General Colvin.

Dr. Chalmers Mitchell said that if animals were kindly treated and performed within the limits of what they willingly did, there was no cruelty in that. He came to that conclusion after seeing a number of performers and trainers behind the scenes. Wild animals, he thought, had even a higher capacity for training than domestic animals, if taken very young. He once had a caracal, or African lynx, a species of wild cat, which used to sleep on his pillow, and when it wanted to get off for any purpose it used to push his face with its paw. Of big and powerful animals people were apt to be frightened. Loss of nerve on their part and perhaps a fit of temper by the animal simultaneously would be a source of serious trouble. "To keep such animals under control," said Dr. Mitchell, "you have to keep them afraid of you, and that is where the first danger of cruelty comes in. In order to have confidence in yourself and to inspire confidence in your audience, the animal has to fear you." But he did not think this subjection necessarily meant cruelty to the animal.

Dr. Mitchell said that some years ago he was asked to receive at the Zoo a huge bear, the trainer of which had been sent to prison for gross cruelty to it. All the time the man was in prison, however, they could do nothing with the bear, which sulked and whined. When released, the trainer came to the Gardens and went into the cage with the bear, which at once licked his face and showed every sign of delight. Dr. Mitchell added that there was no limit to what an animal could be trained to do by kindness, except that of the animal's own capacity.

The Chairman: No doubt you are aware that there are many people who have strong views on this matter, and some who would like to see the Zoo abolished and the animals released from captivity. What do you say about that? Do you find they pine or waste away in captivity?—It depends on the animals. Some of them thrive and others are difficult to keep. Take the anthropoid apes; orangs are very difficult indeed; chimpanzees are very easily kept and do well in captivity; gorillas are almost impossible. But on the other side the animals derive a great deal of advantage from being in captivity, as they are saved the constant fear and anxiety which is associated with their normal existence.

In answer to questions, Dr. Mitchell said that, in view of the moods of animals, to get them to do their tricks according to time-table must involve cruelty. There were times when the animals would not want to do anything, and to force them to do so there must be cruelty.

Mr. Alfred Voyce, chairman of the Variety Artists' Federation, said that in all his 30 years' experience he had never seen any cruelty in connection with recognised stage performances of animals. He had seen undesirable performances many years ago, when German and Austrian shows were overrunning the country.

This concluded the evidence, and the Committee will proceed to consider their report.

The Veterinary Record.

1st April, 1922.

INFANT MORTALITY.

Infant mortality has long been recognised as a serious menace to the human race. Numerous Societies have been formed to deal with infant life preservation, and almost every town worthy of the name possesses its infant welfare committee, who deal with all branches of pre and post-natal hygiene.

In the case of the lower animals the subject has only recently received the serious attention which its importance demands.

In the uniparous and larger females, abortion and joint-ill have been studied to a very considerable extent, but there are numerous other conditions affecting the female generative organs which make for sterility or the death of the fœtus.

In ewes it is said that an increase of 200 per cent. is possible, but one of 100 per cent. is extremely good.

To what must these lambing losses be ascribed? It may be that adverse climatic or dietetic conditions account for most. On the other hand, is it not possible that many are directly due to infective processes in the genital organs of the mother? Such a condition would certainly explain the presence of dead, partly developed or weakly lambs which soon die, and retained afterbirth.

Flock lambing records would be a means of increasing the value of ewes, as milk records have in the case of cows. The same remarks are applicable to sows, where losses are equally serious and important.

Pre-natal death of the fœtus can often be studied in the abattoir, but post-natal cases are within the province of the practitioner.

Already there are signs of awakening interest in the causation of these serious losses. Although, containing some debatable statements, Williams' *Diseases of the Genital Organs of Domestic Animals* must be regarded as a distinct advance in the right direction and possesses, moreover, the merit of originality.

Many will derive benefit from a perusal of its pages, and so be prepared to view questions of sterility and fœtal death from a fresh standpoint.

There is no reason why a few careful observers, by recording their experiences of this phase of veterinary work, could not greatly augment the value of the profession to the sheep and pig-breeding industries of the country.

Abstracts and Reviews.

The Toxæmias of Pregnancy.

When every possible surgical method has been exhausted for alleviating childbirth, we turn our attention, says Professor Louise McIlroy, to the medical aspect of the subject to find that the work of the future lies in the investigation of the physiological and pathological conditions of pregnancy. By the prevention or early relief of many conditions we will soon realise that much of the operative interference advocated hitherto is unnecessary.

For the same reason puerperal sepsis will be found to have a close association with the prevention of abnormal conditions found during pregnancy.

The main work of the future lies in the investigation of the toxæmias of pregnancy. At present we only stand on the threshold of the subject and contemplate as if in a mist the difficulties and complications which confront us. Already the literature is burdened with inexactitudes, published by physiologists and pathologists who not only contradict one another but themselves in their subsequent publications. Such a condition of affairs proves the difficulties of the research. Clinicians look for guidance to the laboratory workers, but much patience will be required before the problems involved are ready for solution. Take, for example, the ammonia coefficient in the urine of pregnancy, which was looked upon as an almost infallible test of the gravity of the condition, and was employed as an indication for the termination of pregnancy. It is now admitted that it is of little value, as it is so readily modified by various factors, such as diet, vomiting, and the administration of alkalis. One discovery of vast importance is that the clinical obstetrician can no longer stand alone in his diagnosis of the complications of pregnancy, but that he must have help from various sources. The main source of help is to be found in (1) public authorities, and (2) expert laboratory workers.

Before entering upon a discussion of the abnormal conditions found in pregnancy it must be noted that very little is known of the normal physiological processes which take place in connection with the physiology of reproduction and the newborn; and that a great deal of research must be carried out in these directions before we can dogmatize as to where the normal ends and aberrations begin.

At present much research is being done in various teaching centres upon the origin of these toxæmias.

Manifestations of the Toxæmias of Pregnancy.

The developing ovum causes physiological changes to take place in the maternal organism, the evidence of which is to be found in the breast, blood serum, and endocrinous organs. These changes are said to be due to enzymes or ferments circulating in the blood and having their origin in the trophoblast and fœtal portion of the placenta. Antibodies are generated in the blood at the same time which render these ferments or toxins harmless by neutralising them. In this way auto-intoxication is prevented and the woman is immunised by her own serum. These chemical substances were investigated by Abderhalden as the result of Veit's work on the syncytial fragments found in the blood stream in pregnancy, and which are said to be destroyed by antibodies. The ferments have not as yet been isolated as far as any chemical test can be applied to their recognition, but the theory of their presence is supported by a considerable amount of circumstantial evidence. Abderhalden found by his dialysing process that from the sixth week of pregnancy until after delivery these substances could be found in the blood, but his work has been questioned by subsequent observers who obtained similar results in cases of myoma and cancer. The presence in the blood stream of syncytial fragments with villi is borne out by the *post-mortem* examination of patients dying from eclampsia where emboli composed of these structures have been found in the lungs, and also

in cases of chorion-epithelioma, where there is a widespread distribution of the malignant growth fragments from the ovum. As far as our present knowledge goes the main source of the toxins is the fœtal placenta, the fœtus itself contributing little by its waste products to the supply. Abderhalden did not find these substances in the fœtal circulation. Under normal physiological conditions the toxins when neutralised are eliminated by the various excretory channels, more especially the kidneys. If the normal process of excretion is interfered with, or if pregnancy has occurred under conditions where elimination has been defective, as, for example, in nephritis, a condition of auto-intoxication or toxæmia may result; its severity depends upon the strength and degree of concentration of the toxins and on the failure of the maternal organism to excrete them. Accumulation of toxins occurs should there be any interference with the metabolic processes of the liver, as this organ, together with the endocrinous organs, detoxicates the ferments to a certain extent and renders them innocuous when passing through the excretory channels. The liver is therefore a most important organ in the investigation of those toxæmias which are intimately concerned with its function. The kidney is secondary and acts as an excretory organ, its degree of activity depending upon its previously healthy condition and upon the virulence of the toxins which pass through its tissues. As the toxins are retained in the blood, the chemical analysis of the blood is as important as that of the urine. It is said that toxins having their origin in the syncytium are more active in the early months of pregnancy, but this is open to question, as it is a matter of clinical experience that severe toxæmic conditions, such as are found in eclampsia and accidental hæmorrhage, occur in the late months of pregnancy. As investigators advance in their researches wider fields seem to open out, and conditions such as hæmorrhage from the pregnant uterus, formerly looked upon as due to local or traumatic causes, are now classified under toxæmias. The majority of cases of interruptions of pregnancy—that is, abortion, premature births, habitual death of the fœtus, etc.—are now looked upon as toxæmic in origin.

Gordon Ley found that a large number of cases of accidental hæmorrhage showed toxic symptoms. The toxæmic origin of eclampsia is now accepted, and also of persistent vomiting, chorea, ptyalism, acute yellow atrophy, and insanity.

It may be possible that in the future we will find conclusive evidence that fibroids are due to a toxin in the blood. The investigation of several cases of this condition has led me to adopt this view of the origin of these overgrowths of the uterine wall, associated as they frequently are with severe hæmorrhage which is not mechanical, and also with toxæmic complications. There is histological evidence to prove that there is some chemical irritation of the walls of the blood vessels in the substance of the growth, more especially in cases of multiple small tumours. It is quite possible that such conditions as hydatidiform mole also may owe their origin to some toxic condition of the ovum.

It is difficult to distinguish a toxæmia of pregnancy in a previously healthy individual from that of a pregnancy super-added to an already existing disease. This question affects the prognosis and also the advisability of incurring a future pregnancy. The history of previous constipation, intestinal stasis, hepatic or renal disorders is a guide. Examination of the teeth for evidence of caries or pyorrhœa, and *x*-ray investigation of the stomach and bowel are of value, as also the investigation of the bacteria of the bowel contents and the urine. As a rule the toxæmias of pregnancy disappear after labour. Little is known of the changes which take place in the endocrinous organs in pregnancy or of their failure in function. Epidermal changes such as pigment deposit, dry scaly skin, brittleness or loss of the nails, with thinning of the hair, point to thyroid or suprarenal insufficiency.

The Urine in Pregnancy.

The routine examination of the urine in pregnancy is essential in every case; when albumin is found to be present it should be looked upon as a danger signal, although it must be remembered that some of the most serious cases of eclampsia and coma have shown no evidence of albumin previous to the onset of the acute condition.

Albuminuria may be a transient symptom, it is not always evidence of toxæmia. It is most frequently found in the latter half of pregnancy and in primiparæ. It may be associated with death of the fœtus and premature labour. If the amount of albumin is considerable the possibilty of the occurrence of eclampsia must be borne in mind. When associated with œdema of the abdomen and lower extremities it points to toxæmia. If there is œdema of the face and arms the condition is more likely to be one of chronic nephritis (Eden). In some cases the toxic symptoms disappear after death of the fœtus in the uterus; the toxæmia resulting from infection of the dead ovum must not be confused with the toxæmias due to placental origin. In some cases of toxæmia œdema of the fœtus has been found and pathological changes in the placenta.

What is the value of the analysis of the amount of the various constituents of the urine? Mackenzie Wallis lays much stress upon the diastase content of the urine and blood, and advocates that the test should be made, together with the urea concentration test by Maclean's method, the ratio between the amount of globulin and albumin, and the urea content of the blood. He also investigates the blood for sugar, and when possible the cerebro-spinal fluid also. He holds the view that globulin is a direct indication of the amount of toxin eliminated, and is therefore more favourable than albumin excretion. In the urea concentration test 15 grams of urea is given to a fasting patient, and the urine examined in two or three successive hours. If the amount of urea is found to be 1 per cent. or below, damage to renal tissue is taking place; the normal amount should be 2 per cent. or more.

Mackenzie Wallis affirms that diastase is a constant factor in the urine of the non-pregnant, except in cases of disease of the pancreas, but that it is affected by toxins in pregnancy, the urine showing a high diastase content in eclampsia and other toxic conditions. This is an important danger signal if the rise in content is rapid; it sometimes persists after other symptoms have disappeared. Congestion of the capillary tufts of the glomeruli causes a rapid rise in the diastase content of the urine. The content is usually low in chronic nephritis—below ten units—and is therefore a means of distinguishing between the two conditions.

The nitrogen changes are of importance. For the meantime the ammonia coefficient has to be left in abeyance. Urea is diminished in eclampsia and in persistent vomiting. Acetone is only of importance when associated with diacetic and β-oxybutyric acids; if these are in excess in the blood there is a condition of acidosis present. Williamson has found acidosis constantly present in severe toxæmia with albumin, but not in chronic nephritis unless toxæmia is added.

The excess of acid in the blood is neutralised partly by the ammonia or alkaline blood salts. The liver being concerned with carbohydrate metabolism is an important factor and when destruction of its tissue occurs the condition is grave. Lipoid substances are found in the blood in hepatic derangements.

The Blood.

It is essential to examine the blood in order to determine the amount of retention of the various products of disordered metabolism. The concentrated toxins of pregnancy seem to have an effect upon the tissues similar to those of some forms of snake poison. According to Mackenzie Wallis the blood changes in toxæmias are not marked. Blood sugar shows little change, and this he takes as evidence of the slight disturbance of the endocrinous organs. Blood diastase is unchanged in eclampsia but increased in nephritis. A high urea content indicates progressive destruction of kidney tissue, and in such cases induction of labour should be considered. If the urea

content rises to 0·3 per cent. there is grave danger to the patient.

In the diagnosis of toxæmia from nephritis there is much confusion and difficulty. The factors which have been put forward as a means of differentiation are: The diastase urine content is high in toxæmia, low in nephritis, while in the latter the blood content is increased. Serum globulin is more abundant in toxæmia, and serum albumin in nephritis. Acidosis is present in toxæmia, and rare in nephritis. Albuminuric retinitis is more frequent in nephritis. Primiparæ suffer more from toxæmia, and nephritis is more frequent in multiparæ.

The rise in blood pressure is a valuable danger signal, and in threatened eclampsia is often the forerunner of convulsions. If it rises above 150 mm. there is cause for anxiety. A high blood pressure persisting in spite of treatment is sometimes an indication for the termination of the pregnancy. It is associated with the function of the pituitary and suprarenal glands, and with the presence of amines.

Changes in the Tissues.

Bacteriological investigation of the toxæmias has contributed little to their elucidation. The histological examination of organs obtained *post-mortem* and the examination of the placenta show destruction of renal and hepatic tissue with degenerative changes in the uterus. Gordon Ley, who investigated fifty cases of accidental hæmorrhage, in forty-two of which albumin was present, concluded that the condition was due to toxæmia; he found marked degenerative changes in the uterine wall, with areas of necrosis, hæmorrhage, and œdema of the connective tissue, and diminished elasticity, showing a tendency to rupture.

It is probable that cases of rupture of the uterus will be found to have their origin in toxæmia; this theory explains the ease with which rupture takes place after slight manipulation of the uterus, and the resistance of a healthy organ to strain in cases such as impacted shoulder presentations. The cause of atonic *post-partum* hæmorrhage may be found on examination of the blood and urine. Changes in the placenta have been observed by numerous workers. Persistent vomiting and eclampsia may be taken as examples of the early and late toxæmias; the clinical history of such cases and the *post-mortem* findings point to a variety of toxins as a cause. In time it may be possible to group the toxæmias of pregnancy into various classes corresponding to the duration of pregnancy. It is also likely that it will be possible to draw a distinction between those cases in which the liver is involved, and others in which there is deficient elimination by the kidneys. The investigation of the sugars in the urine and blood opens up a wide field for research upon carbohydrate metabolism and toxæmias.

General Principles of Treatment.

The aim of treatment is to neutralise and dilute the toxins in the serum, and to facilitate their elimination by the normal channels of excretion. Rest is essential in the severe cases, as it prevents tissue waste and favours diaphoresis and kidney excretion. A protein-free diet is essential in most cases, and Tweedy and others have found starvation of benefit in severe cases of persistent vomiting and eclampsia. It must be remembered that this method of treatment cannot be unduly prolonged as there is a possibility that acidosis may occur. It is sometimes possible to follow up the treatment by a carbohydrate and protein diet without much interval.

I cannot lay too much stress upon the importance of attention to the teeth. Pyorrhœa should be treated by antiseptic mouth washes and vaccines, and carious teeth attended to or removed. Experience has shown that the treatment of the teeth gives most satisfactory results in the prevention of the severer forms of toxæmia.

Fluids, alkaline if possible, should be given in all cases of toxæmia. If the condition is severe, all stimuli such as noise and light should be excluded. Purgation must be used with caution so as not to cause irritation of the bowel wall; the days of drastic treatment by croton oil happily are over. Paraffin for more prolonged treatment is of great benefit, as it lubricates the bowel contents, prevents the absorption of toxins, and carries down the bacteria in its substance. The colon, which is the main channel for absorption, should be emptied at frequent intervals by enemata given by means of a long rubber tube at low pressure. Intestinal lavage with saline and sodium bicarbonate (ʒij. to the pint) is essential in every case, and the slow method of introduction gives the best results, care having been taken to remove the fæcal contents from the lower bowel. It must be remembered that such treatment may in rare cases cause uterine contractions and expulsion of the ovum. The continuous drop method of introducing saline and glucose (ʒij. to the pint) into the rectum is of benefit. In severe cases lavage of the stomach, leaving in a full dose of magnesium sulphate, gives good results. Stimulation of the skin is brought about by baths, radiant heat, and packs. Drugs are of little value. For mild cases intestinal disinfectants, such as thymol, creosote, salol, and small doses of calomel, are of benefit. Potassium chlorate gives good results in cases of repeated abortion (Jardine).

Veratrone for the reduction of blood pressure is advocated, but only one dose should be given. Pilocarpine has been abandoned by most obstetricians as it causes œdema of the lungs. The administration of morphine in eclampsia is still a matter of controversy, although the Dublin school by long experience testify to its good results. It is of great use in diminishing fatigue in cases of prolonged vomiting, and its sedative action undoubtedly outweighs its supposed harmful effects. In some cases of toxæmia with high blood pressure I have had good results from the administration of Dover's powder. I have had no experience of decapsulation of the kidneys, nor do I consider this treatment advisable in view of more modern methods. Venesection is advocated in eclampsia, and is of great benefit in cases of full pulse and raised blood pressure. It is contra-indicated in cases of anæmia and exhaustion, such as is produced by persistent vomiting. Alkalinised saline transfusion is employed as a means of neutralising and diluting the toxins in the blood stream. Mild cases of toxæmia respond readily to treatment, but in the experience of most obstetricians in some severe cases, especially if of sudden onset, all treatment has seemed useless.

The decision as to the advisability of induction of abortion or premature labour is difficult.

Induction is a confession of failure in treatment, and although the toxins are generated in the placenta and therefore removed in most cases by expulsion of the ovum or placenta, it is not always the case that cure results, and it must also be borne in mind that surgical interference carries with it a degree of risk and possibly the termination of the life of the fœtus when pregnancy is advanced. The process of labour throws an additional amount of toxins into the blood stream. In devitalised conditions the risk of sepsis after any manipulative interference is not to be ignored. In conditions such as threatened eclampsia with rising blood pressure, persistence of albumin in the urine after treatment, or in those in which the urine is diminished or suppressed, induction is indicated.

In conclusion, we must bear in mind that the main number of severe cases are preventable if treatment can be given in their early stages. Every case of albuminuria should be investigated. Financial facilities should be given to research workers, especially in the domain of physiology, for the investigation of the normal function of human pregnancy

[*Some Observations on the Investigation of the Toxæmias of Pregnancy*, by Professor A. Louise McIlroy, M.D., D.Sc., Director of the Obstetrical and Gynæcological Unit, London School of Medicine for Women.—*British Medical Journal*, March 4th, 1922.]

Superannuation Funds and Income Tax.

There appears to be a considerable amount of doubt as to whether payments made to a superannuation fund can be deducted in computing income tax liability, and this

note, published in the *British Medical Journal*, March 4th, 1922, is intended to state the present position of the matter. In 1903, as a result of a series of cases in the High Court,* it was established that where a superannuation scheme was set up which provided *inter alia* for a return of a lump sum at death or retirement, the deductions from salaries could not be allowed for in the income tax assessment, which must be made under Schedule E on the full salary. In practice, however, the Board of Inland Revenue appears to have entered into explicit or tacit arrangements under which the allowances were made, subject, in the case of returnable deduction, to certain conditions by which the superannuation fund agreed to be bound. Extra-legal arrangements of this nature, however equitable, are undesirable, and the whole matter was regularised by Section 32 of the Finance Act of 1921, which has clothed with statutory authority the recommendations of the Royal Commission on the Income Tax. Under that Act the Board of Inland Revenue received power to draw up regulations, and copies thereof can now be obtained from Somerset House, laying down in precise form the conditions under which superannuation funds will be "approved." When that approval has been given and the fund placed on the list the deductions made on payment of the salary become proper subjects for allowance for income tax purposes. It would be unprofitable to enter on any full statement as to the conditions affecting approval of a superannuation fund, but two points may be mentioned. In the first place, the 1921 Act automatically determines as from April 6th, 1922, the operation of the previous extra-legal arrangements under which the allowances were being made, so that early action on the part of any fund affected is desirable. Secondly, the value of the allowance in these days of a 6s. income tax is not to be despised; for instance, although a new life insurance policy will carry a benefit of 3s. in the £ only, an allowance for a superannuation fund deduction operates as an "expense," reducing that portion of the assessment on which tax is being paid at the highest rate. It may, perhaps, not be out of place to warn those concerned to see that on their own assessments the application of the old arrangements has not been discontinued prematurely; where a deduction was allowed for 1920-21 it should have been given for 1921-22, whether the fund is approved under the 1921 Act or not.

* Beaumont *v.* Bowers [1900], 2 Q.B., 204; Bell *v.* Gribble and Hudson *v.* Gribble [1903], 1 K.B., 517.

Asthma from Animals.

The case of a woman in Crewe, who could not live near stables and who has an attack of asthma whenever she meets a horse, is by no means unique, according to a doctor who was asked about it by a *Daily Mail* reporter.

It has been recently found, says that journal, that asthma is often caused by inhaling particles of the hair of animals, particularly that of the horse, the cat, and the dog, and above all, of the pet dog that sleeps on the bed. Chicken feathers also cause the disease, and so do powdered foods, such as wheat flour and pea flour.

The explanation is that we take into our bronchial tubes "foreign proteins" which act as poisons to certain people. Tests can now be made to find out which of them any person is sensitive to. In one case, where a baker suffered from asthma for 14 years, he was tested with 113 different proteins, and at last it was found that the two which caused the asthma were those of rye and wheat.

There are many other factors in the production of asthmatic attacks, but the first step in curing the disease is to avoid the source. If the cat or the dog is to blame, then these animals should be kept out of the house. A curious fact is that patients may be "desensitised" by injection of the offending protein, so that they can afterwards face the dog or horse or cat with a certain amount of impunity.

Clinical and Case Reports.

The Editor will be glad to receive from members and others contributions to this column of reports of interesting cases.

Etiology of Fistulous Withers and Poll Evil.

By W. R. Davis, M.R.C.V.S., Enfield.

Traumatisms of some kind—wounds, bruises, bites, blows, pressure of harness, etc.—are universally taught and held to be the cause of the above-named maladies. In a fairly long experience I cannot recollect to have traced directly either of these conditions to the causes assigned, yet I have seen really dreadful cases of sore back, and severe sitfasts of old standing, which recovered without developing into fistulous withers. One case I recall was a donkey, used for giving rides to visitors on the sea shore. When I examined it the unfortunate creature had a suppurating wound on the side of the withers, and from it, back as far as the lumbar region, the subcutis was replaced by a thick layer of yellow pus. It did not give rise to fistulous withers. A curious observation I have made is that horses used continuously in town work are seldom affected. I have had contracts for twenty years with two firms owning over one hundred and twenty horses between them, and I have never had a case of either malady among the horses. However, about eighteen months ago one of the firms bought a farm and sent some of their heavy horses to work on it. Six months afterwards one of these animals—a mare, fourteen years old, developed a very severe poll-evil. I should say that a hundred agricultural horses are affected for every one used constantly in town work—*and never turned out to grass.* I recently asked the manager of a large firm who have depots all over North London whether their horses were often affected by these diseases, and he told me that the only case he could remember was that of a young horse that had poll-evil three weeks after purchase (the horse was probably bought with it, as the seller took the animal back).

A curious thing to remark is that many cases may be met with in one area of a practice and few in other parts of it. On eight farms, almost touching each other in my practice, I have met with the following examples of these diseases:—Farm A, fistulous withers; B, one case of fistulous withers and one case of poll-evil; C, fistulous withers; D, fistulous withers; E, three cases of fistulous withers; F, fistulous withers, followed by poll-evil in the same horse; G, fistulous withers; H, poll-evil.

The farms are small, and I do not think the horse population on them reached beyond fifty.

The late Mr. G. Upton, M.R.C.V.S., the news of whose tragic end came as a painful shock to many of

us, used occasionally to permit himself some extravagances when discussing questions of pathology, but he made a remark at a meeting of the Central Veterinary Society which, though it was received with incredulity at the time, had, I venture to think, a basis of truth in it. Mr. Upton said that he regarded fistulous withers and poll-evil as being allied to glanders and tuberculosis, and that they were contagious. It is probable that what the speaker intended to convey was that the process was due to infection, rather than to the effects of violence, and I begin to believe that he was not far wrong. It would be interesting to know whether horses used in mines, where they must frequently be subjected to bumps and knocks on head and back, are particularly liable to these maladies, and perhaps one of your readers engaged in mining practice would enlighten us on this point.

The use of the Chloroform Box.

By Horace Burrell, M.R.C.V.S., Croydon.

Since November, 1919, I have experimented with the use of various sized boxes for the administration of chloroform as an anæsthetic to the smaller animals, varying in size from kittens and Pekinese dogs and retrievers, both previous to securing them on the operating table for a surgical operation (after which a Hobday chloroform inhaler is used), and also when it is necessary to destroy them by injecting Scheele's hydrocyanic acid as soon as they are completely anæsthetised—the animals remaining in the chloroform vapour until breathing ceases.

I do not give a hypodermic injection of morphia before the administration of chloroform, as many practitioners do, for my experience with small dogs or cats is that the prick of the needle makes many of them almost frenzied.

The animals are not usually excited in the chloroform box, because of the following precautions, which make the apparatus safer to use :—

(1) They are not secured in any way (except dogs of the size of Airedale terriers and upwards, which are chained up by their collars inside the box, but not tightly).

(2) They are provided with one or two windows (protected inside with galvanised wire netting), so that darkness does not frighten them, as in earlier patterns of boxes used.

Animals usually go to window just before they go off into unconsciousness, so this is placed as near as possible to the entrance point of the chloroform vapour jet.

(3) Chloroform vapour and air is pumped into the box from an apparatus outside, in which air is passed through chloroform by the usual hand bellows.

This strong vapour is quite safe for use by the box method of administration, so long as the box is large enough for the dog or cat; and I do not find that the chloroform container of either a No. 1 or No. 2 pattern of a Hobday inhaler gives off a strong enough vapour to anæsthetise an animal sufficiently quickly by this method. For very large dogs a spray producer may be used.

(4) On the opposite side of the box, through which the vapour jet enters, are bored six holes with a large gimlet; this appears to prevent an animal's breathing becoming shallow or stopping, if he should turn his tail towards the jet instead of his head. The holes should be large enough to admit an ordinary wooden meat skewer; and I consider this precaution is necessary to make the use of the box safe.

(5) Do not remove the animal from the box if he stiffens his muscles when his neck is handled; this applies especially to cats.

Two boxes have been used for cats or dogs up to the size of a Japanese spaniel :—

(1) Inches, 18½ by 10½ by 11 (inside measurement).

(2) Inches, 24 by 7½ by 9 (inside measurement).

A large box with a hollow rising lid and two partitions is used for dogs from terrier size up to retriever size or bigger.

(1) The small compartment for terriers, spaniels :—Inside measurement, inches, 24 by 13 by 16½.

(2) A larger compartment, formed by removing one partition, inside measurement, inches, 36 by 24 by 22, for dogs up to Airedale size.

(3) The whole box for large dogs. Inside measurement, inches, 46 by 24 by 22.

For (2) and (3) the space inside the hollow lid must be added.

Association Reports.

Lincolnshire and District V.M.A.

The annual meeting of the Lincolnshire and District Veterinary Medical Association was held at the Angel Hotel, Grantham, on Thursday, February 9th. There were present :—Mr. T. Hicks (Sleaford); President, Mr. R. W. Knowles (Wisbech); Mr. G. Lockwood (Peterborough); Mr. F. H. Sugden (Grantham); Mr. H. Caulton Reeks (Spalding); and Mr. W. W. Lang (Brigg), Hon. Secretary and Treasurer. Mr. W. W. K. Edwards (Grantham) was also present as a visitor. Apologies for absence were received from Messrs. W. W. Grasby (Daventry); F. L. Gooch (Stamford); E. Wardrop (Outwell); T. T. Holmes (Bourne); and — Townsend.

Financial Statement.

The Treasurer presented a statement of accounts for the past year. The Association started with a balance in hand of £19 6s. 2d., and the expenditure for the year was £15 12s. 2d. The balance at the close of the year was £16 14s. 6d. The expenses had been somewhat exceptionally heavy, the Treasurer explained, owing chiefly to special printing requirements.

The accounts were approved and adopted on the motion of Mr. Lockwood, seconded by Mr. Knowles.

Correspondence.

The National Association wrote regarding the matter of the distribution of biological products, that matter was *sub-judice*, and it would therefore be better if district associations would forward

suggestions on the subject to them, but not send resolutions for submission to other quarters.

The Assistant Secretary wrote that the *Veterinary Record* was now the official organ of the Association, and that notices of proceedings would be inserted free of charge.

A letter was received, stating that a committee had been formed to provide a "Malcolm Memorial Fund," and they would be glad of support. The letter pointed out the deceased's great services in the formation of the N.V.M.A., and added that it was hoped to assist in the education of his three boys.

The PRESIDENT said he was sure they would wish to subscribe as an Association, and some had done so individually. He suggested, in accordance with their rule, that the matter be put on the agenda for the next meeting. This course was agreed to.

The Victoria Benevolent Fund wrote asking for a subscription from the Association as usual. The matter was dealt with as a question of urgency, and it was suggested to send a donation of £2 2s. The amount was £3 3s. last year, but it was felt that in view of the reduced balance, the smaller amount was what the Association could afford on this occasion. This course was taken on the motion of Mr. HICKS, seconded by Mr. KNOWLES.

ELECTION OF OFFICERS.

President.—Mr. KNOWLES proposed that Mr. T. Hicks be re-elected President of the Association for the coming year, and referred to his long and able services as hon. secretary of the branch.

Mr. LOCKWOOD seconded, and said he hoped Mr. Hicks would accept the office which they offered as a slight recognition of the amount of work he put in as their secretary. The Association had not quite settled down to its pre-war state, but he hoped before long they would get their old attendances.

Mr HICKS replied to a unanimous election. He should be only too pleased to act if they would trust to him. He felt—and he hoped this would meet some other people's eyes—that it was shameful that with all the members of the profession there were in the district, they could turn a deaf ear to their appeals. They were not doing any good to themselves by staying outside, and were doing harm to the profession as a whole, especially in view of the powers now vested in the National Association. (Applause.)

Secretary and Treasurer.—Mr. LOCKWOOD proposed that their worthy hon. secretary and treasurer, Mr. Lang, be asked to remain in office. They had been fortunate in finding such a worthy successor to Mr. Hicks. He handled the reins of office very well.

Mr. HICKS seconded, and said no one knew the amount of work entailed better than the President did. Mr. Lang was a hard worker and keen on his profession generally. He was the man they wanted in the job, and they would be only too pleased if he would continue in office. (Hear, hear.)

The resolution was carried unanimously.

Mr. LANG, in accepting office and thanking members, said he did not look to the appointment as one of personal glory, but as a duty which ought to be done. They must keep the profession going, and do their level best for it.

New Members.—Mr. HICKS proposed, and Mr. SUGDEN seconded the election of Mr. H. Caulton Reeks, of Spalding, and Mr. J. Conner, of Long Sutton, as members of the Association and the meeting concurred.

The SECRETARY nominated Mr. W. W. H. Edwards, of Grantham, as a member, subject to confirmation at the next meeting.

Royal Sanitary Institute.—It was agreed that the Hon. Secretary represent the Association at the Sanitary Institute Congress at Bournemouth, the Chairman observing that it was most important that they should keep in touch with the medical profession in this way.

The Secretary was also appointed as delegate to the National Conference.

Mr. H. Caulton Reeks, F.R.C.V.S., then read a paper on "A few Notes on Foaling Cases and their Sequelæ."

(Mr. Reeks' paper, with the ensuing discussion, receives separate publication.—ED.)

After the discussion and the inspection of implements and apparatus shown by the reader of the paper, the meeting adjourned, having recorded a vote of thanks to Mr. Reeks.

The next meeting is at Peterborough, on the second Thursday in June.

W. W. LANG, *Hon. Secretary.*

The North Midland.

A meeting of the above Association was held at the Veterinary Inspectors' Office, Town Hall, Sheffield, on Wednesday, December 21st, 1921, when the following members were present:—

The President, T. Bowett, Esq. (in the chair); Major Abson, D.S.O., Sheffield; Messrs. E. Thompson, J. H. Yates, L. H. Torrance, S. E. Sampson, T. C. Fletcher, S. H. Nixon, Sheffield; W. Collinson, Anston; E. G. Johnson, Beighton; R. Hudson, Retford; G. J. Furness, Alfreton; C. S. Smith, Barnsley; G. Green, Rotherham; and the Honorary Secretary. Apologies for inability to be present were received from Messrs. King-Clark, Chesterfield; and Robinson, Barnsley.

The minutes of the Summer Meeting were read as follows:—

SUMMER MEETING, HELD SEPTEMBER 16TH, 1921.
TRIP TO MATLOCK, ETC.

Members and lady friends first met at the King's Head Hotel, and partook of luncheon at the invitation of the President. The following ladies and gentlemen were present:—The President and Mrs. Bowett, Mr. and Mrs. Hudson, Mr. and Mrs. Sampson, Mr. Collinson, Mr. and Mrs. Jones, Mr., Mrs. and Miss Nixon, Mr. Fletcher and Mrs. Lievesley, Mr. and Mrs. Smith, and Mr. Smith, jun., and the Honorary Secretary.

After luncheon the party proceeded by char-a-banc via Bakewell to Haddon Hall, which was inspected by the party, again at the expense of the president. The party next proceeded to Matlock, where they were welcomed by Mr., Mrs. and Miss Somerset. Mr. Somerset was the first President of the Association, and the party were

particularly pleased to see him in his retirement. After taking tea with Mrs. Somerset, the visitors strolled about the grounds, some also having a look at the town of Matlock, but much too soon it was necessary to start the homeward journey. The party could not leave, however, without expressing their very heartiest thanks to Mr. and Mrs Somerset, and in reply Mr Somerset assured his friends that the pleasure was his, and hoped they would come again.

The return journey was made via Cromford, by Gellia and Chatsworth Park. Owing to the recent return of the Duke of Devonshire from Canada and the fact that His Grace and family were in residence, it was impossible for the party to visit Chatsworth House and view its many treasures. All, however, enjoyed thoroughly their trip, and all were deeply indebted and grateful to the President who so kindly invited them to accompany him and his "good lady" for a day's outing in the beautiful Peak District of Derbyshire.

The minutes of the Council meeting held on December 6th, were next read as follows :—

MEETING OF THE COUNCIL HELD DECEMBER 6TH, 1921.

Held at No. 3 Ellin Street, by kind permission of Mr. Fletcher. The following members were present:—Mr. Bowett (President, in the chair), Messrs. Nixon, Fletcher, Hudson, Collinson, Thompson, and the Honorary Secretary. An apology from Mr. Robinson for inability to be present was received.

Arising out of the correspondence, the Honorary Treasurer was instructed to pay the affiliation fees to the National Veterinary Medical Association for 1921.

A letter enclosing circulars *re* "Specialists," from Mr. Pillers, was read, and it was agreed that the circulars should be sent out to the members.

Mr. Clarkson wrote stating the fees for mallein tests agreed upon by the Yorkshire Veterinary Association, and after discussion it was resolved that the fee be 10s. per animal, mileage additional.

The correspondence was also read from Mr. De Vine *re* advertising the meetings in the *Veterinary Record*, and inviting subscriptions to the "Malcolm Memorial Fund." In regard to the latter it was decided that we have a whip at the next meeting and then circularise the absentees, and transmit the total collected through the Honorary Treasurer to Mr. De Vine.

The Council then proceeded to make its recommendations for officers for 1922, and decided as follows:—

President, Mr. Bowett; Past-President, Mr. Hudson; Vice-Presidents, Messrs. Green and Hodgman; Honorary Secretary, Honorary Treasurer and the Auditors to be re-elected; the Council to be re-elected, with the names of Messrs. Jones and Angler in place of Messrs. Green and Smith.

It was decided to have the next meeting on December 21st, when a demonstration and paper would be given by Mr. Torrance.

A vote of thanks to Mr. Fletcher and Mr. Bowett, terminated the meeting.

On the proposal of Mr. FLETCHER, seconded by Mr. SAMPSON, the minutes were adopted.

A letter was read from Mr. De Vine, asking for donations towards the Malcolm Memorial Fund, when it was decided on the proposition of the Honorary SECRETARY, seconded by Mr. COLLINSON, that the sum of £10 10s. be forwarded to Mr. De Vine.

A letter was read from the Honorary Secretary of the Lancashire Veterinary Association asking this Association to join in support of various candidates nominated and approved by the Divisions in the Northern Branch. It was decided to join the Society and support the nomination of Major Abson.

The financial statement was read by the HONORARY TREASURER, saying that the Society was in a good financial position. The Honorary Treasurer was instructed to pay the affiliation fees of the Society to the National Veterinary Nedical Association.

A letter from Mr. Buxton, Secretary of the N.V.M.A., relating to the numbers of unqualified practitioners and castrators residing within districts covered by this Association, was considered and the Honorary Secretary was instructed to forward the names of thirteen such persons.

A demonstration on the "Detection of Tubercle Bacilli in Milk" was given by Mr. H. L. TORRANCE, M.R.C.V.S., D.V.S.M., Assistant Veterinary Inspector for the City of Sheffield, and he also read a paper on the subject.

(This paper, together with the ensuing discussion, will receive separate publication.—ED.)

In his demonstration he produced a specimen of milk to be examined and proceeded to pass it through the centrifuge, so as to obtain the deposit necessary for the microscopical examination.

Mr. Torrance afterwards demonstrated to the members present the preparation and staining of the slides which he prepared in their presence, and proceeded to show the bacilli present on the slides under the microscope. He also showed under the microscope a number of other cocci and bacilli which he had obtained from the suspected udders of cows, which were afterwards proved to be non-tuberculous.

Following the demonstration, the members adjourned to the King's Head Hotel, where dinner was provided at the expense of the Sheffield members. After the dinner a discussion on Mr. Torrance's paper and demonstration took place.

Mr. Torrance thanked the members very much for the interest they had shown in his paper and demonstration, and for the very kind way in which they had expressed their appreciation of his efforts. A vote of thanks to Mr. Bowett terminated the meeting.

Scottish Branch, N.V.M.A.

A meeting of the Scottish Branch, N.V.M.A., was held in the Veterinary College, 83 Buccleuch Street, Glasgow, on Thursday, 23rd February, 1922.

In the absence of the President, Mr. David Brown, Kilwinning, occupied the chair.

The following were present: Messrs. D. Brown, Kilwinning; J. Wilson, Glasgow; J. Macfarlane, Doune; J. Macfarlane, Glasgow; W. Roy, Glasgow; W. Anderson, Glasgow; J. Taylor, Cathkin; G. W. Weir, Glasgow; and J. D. Pottie, Greenock.

Apologies for absence were received from Principals Gaiger and Bradley, Messrs. A. Gofton, A. Linton, H. McVean, G. Howie, T. Dalling, D. Campbell (Rutherglen), D. C. Smith (New Cummock), A. Baird (Edinburgh), W. Anderson (Pittenweem), P. Wilson (Lanark), N. H. McAlister (Kirkcudbright), and J. R. McCall.

The SECRETARY read the minutes of last meeting which were approved and adopted.

Business.—Election of office bearers.

The SECRETARY intimated that the President and himself had been in communication with the Secretary of the North of Scotland Division, Mr. Howie, Alford, and had suggested to him that the President and Secretary of their Division might allow their names to go forward for election to the offices of this Branch. After some correspondence on the subject he had received a telegram that morning *re* the President and Secretary of the North of Scotland Division, viz. :—Mr. Hugh McVean, Craigellachie, Banffshire, and Mr. George Howie, Alford, Aberdeenshire.

The SECRETARY then proposed that these gentlemen be elected to the offices of President and Secretary respectively.

Correspondence.—A letter from the Royal Sanitary Institute, 90 Buckingham Palace Road, London, was read, asking the Branch to send delegates to their 33rd Congress, to be held at Bournemouth from July 24th to 29th, 1922, and enclosing form to be filled up and returned together with a cheque for £1 11s. 6d. for each delegate appointed.

The SECRETARY pointed out that the Branch had no funds, as no subscriptions were paid to the Branch, and therefore the meeting could hardly appoint delegates, and he would move that it be left to the Divisions, who would no doubt receive a copy of this letter, to deal with the matter. Mr. MACFARLANE seconded this, and there being no amendment, it was carried.

A letter from the Secrerary of the Dumfries and Galloway Division was submitted, bringing up again the question of trying to find a veterinary surgeon to represent the Scottish practitioners on the Council.

On the motion of Mr. POTTIE, seconded by Mr. MACFARLANE, it was agreed to let the letter lie on the table meantime.

The meeting closed with a vote of thanks to the Chairman for his conduct of the meeting.

GEORGE W. WEIR, *Secretary.*

Notes and News.

Cost of Foot-and-Mouth Disease.

NEW BILL TO PROVIDE FUNDS.

A White Paper just issued (Cmd. 1,606 price 2d. net) contains a memorandum prepared by the Ministry of Agriculture on the financial resolution of the Diseases of Animals Bill, which has been introduced to extend the Government's powers to meet the cost of the existing epidemic of foot-and-mouth disease.

It is impossible, states the memorandum, to estimate exactly the total cost of this outbreak of foot-and-mouth disease, but it is not anticipated that it will amount to more than £1,000,000 in all, of which one-half will be provided from Imperial funds and the remainder from the local taxation accounts. It will be possible to meet the extra cost of the measures taken to combat this outbreak out of the savings on the moneys already voted for the expenses of the Ministry of Agriculture and Fisheries for the current financial year.

The Diseases of Animals Act, 1894, Section 18, provides for the payment into the Cattle Pleuro-pneumonia Account for Great Britain of "such moneys not exceeding £140,000 in any one year as may be provided by Parliament towards defraying the costs incurred by the Board of Agriculture in the execution in Great Britain of the provisions of this Act relating to the slaughter of cattle, animals, or swine on account of cattle pleuro-pneumonia, foot-and-mouth disease, or swine fever." Any deficiency in the cattle pleuro-pneumonia account is met out of the local taxation account and the local taxation (Scotland) account in the proportion of 88 to 12. The present outbreak of foot-and-mouth disease is estimated to cost in the present financial year considerably more than the limit of £140,000 imposed by the above-mentioned Act, and the new Bill has been introduced for the purpose of removing temporarily the limitation imposed in Section 18 of the Diseases of Animals Act, 1894, as the Government has decided it is not desirable to allow the local taxation accounts to bear more than 50 per cent. of the deficiency arising on the cattle pleuro-pneumonia account after the sum of £140,000 already voted by Parliament has been expended.—*The Times.*

IMPORTATION OF IRISH STORE STOCK.

The Minister of Agriculture has had under consideration representations from farmers to the effect that the resumption in some form of the trade in store stock is becoming essential in order to make use of the summer grazings. To meet this need as far as practicable, an Order has been made by the Minister which will enable the store stock trade from Ireland to be resumed, without, however, allowing the aggregation of store stock in internal markets, which must still be regarded as attended with the risk of the dissemination of foot-and-mouth disease. As long as foot-and-mouth disease still exists in various parts of the country, the holding of markets to and from which animals are gathered and dispersed, and if not sold, are passed on to other markets, involves a grave risk of a widespread dissemination of disease.

The International Anthrax Problem.

At the international labour congress in Geneva, Professor Armstrong, Australian employers' delegate, according to the London correspondent of the *Journal of the American Medical Association*, submitted a resolution that the committee considers that the question of the universal and compulsory disinfection of wool and hair infected with anthrax, in its humanitarian aspects, has not yet been sufficiently studied to justify the conclusion of an international convention; that the conference should request the governing body of the international labour office to appoint an advisory committee to which the Governments of France, Great Britain and Germany, as representing the users, and Australia, India and South Africa, the producers, should be invited to send representatives, and that this committee should be invited to examine the question in all its bearings and present its report to the conference in 1923; that the chairman of the proposed advisory committee should be appointed by the British Government; that the inquiry should at first be mainly by correspondence; that when meetings of the committee become necessary, they may be summoned by the chairman in London, and that co-operation of a representative from the United States be invited. While accepting disinfection as the only effective means at present of protection of workers, the committee regards the eradication of the disease among animals as the ultimate solution, and is of the opinion that the advisory committee should be instructed to report on this subject.

Army Veterinary Classes.

Under new provisions in the King's Regulations regarding instruction for officers and other ranks in the Army Veterinary Corps, classes of three months' duration begin-

ning each year on January 15th and May 16th will be held at the Veterinary School, Aldershot, for majors and captains of the Royal Army Veterinary Corps. All other officers of the Corps may attend by permission of the Director-General, Army Veterinary Service, either for instruction or for work in the laboratories. There will also be classes of similar duration for lieutenants on probation; classes of one month's duration for R.A.V.C. officers of the Militia; classes lasting 12 working days for R.A.V.C. officers of the Territorial Army; and courses of instruction, lasting six months, to train N.C.O.'s and men of the R.A.V.C. as laboratory attendants, the dates for which will be fixed by the Director-General. (A.O. 58 of 1922.)

R.F.C. (London) Subscription List.

The following subscriptions have been received and acknowledged by the hon. secretary of the R.F.C. of the Royal Veterinary College, London, towards the expenses of the inter-College Rugby match in Dublin.

The match was played on February 25th, the Dublin College being victorious by 11 pts. (one placed goal, one mark goal and one try) to 6 points (two tries).

	£	s.	d.
Previously acknowledged	14	7	6
Ex-Student	2	2	6
Practitioner	1	1	0
Dr. Legge Symes	1	1	0
Sir John M'Fadyean	1	0	0
Prof. Wooldridge...	1	0	0
Prof. Reynolds	1	0	0
Prof. Gorton	1	0	0
Prof. Evans	1	0	0
A. L. Sheather	1	0	0
J. McKerlie	1	0	0
G. A. Roberts	1	0	0
—. Bosworth	0	10	6
A. Meak	0	10	6
J. T. Holmes	0	10	6
Prof. Clough	0	10	6
J. C. DeVille	0	10	0
T. Bagshaw	0	10	0
S. Pettifer...	0	10	0
A. Payne	0	10	0
S. E. Sampson	0	10	0
—. Glover...	0	10	0
A. Whicher	0	7	0
—. Golledge	0	5	0
	£32	6	0

B.V.Sc. Degree.

The University of Liverpool Examination Lists for March, 1922, show that in connection with the School of Veterinary Science the final examination for the Degree of B.V.Sc. (*Part* I. *Veterinary Medicine and Surgery*; *Parasitology*) was passed by F. H. Manley and H. T. Matthews; and the First Examination (*Part* II. *General Biology*) by Z. Morcos.

Edward Carey, Registrar.

March 17th, 1922.

Statistics of livestock in Germany on December 1st, 1920, show increases in all kinds during the preceding year. There were 16,789,844 cattle, a gain of 472,516, and 3,581,380 horses (not including cavalry horses), a gain of 116,146. Hogs showed an increase of 2,631,587, sheep 798,772, and goats 311,862.

The Belgian Ministry of Agriculture has arranged to give a series of free public courses in horse-shoeing in 1922. The courses are in charge of official veterinarians and will be held in twenty-four localities. Certificates will be issued to persons who pass a satisfactory examination in theory and practice. The Government has a regular school of horse-shoeing at Brussels.

Obituary.

Mrs. H. Bibbey.

We regret to record, says the *Winsford Chronicle*, the death of Mrs. Bibbey, wife of Mr. Herbert Bibbey, veterinary surgeon, Elm Grove, Winsford, which took place in the Victoria Infirmary, Northwich. Her health for some time had given cause for anxiety, but a sudden attack of illness rendered an operation necessary. Despite every possible attention and skill, however, she passed away on the 9th inst., two weeks after the operation.

Of a very kind and gentle disposition, Mrs. Bibbey will be greatly missed. No one sought her help in vain, and there was much work of a charitable nature she did which was known only to herself and those whom she assisted. She was a devoted wife and mother, and great sympathy is felt for the bereaved. She leaves a husband, two sons and two daughters, one of whom is married in Canada.

The funeral took place at Lawton on Monday. The large number of wreaths and expressions of sympathy testified to the respect and esteem shown for the deceased and her husband.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

On a Valve-like Arrangement sometimes met with in Disease of the Uterine Cervix of Cows.

Sir,—With reference to Mr. F. T. Harvey's notes in the *Veterinary Record* of 4th March, under the heading of "On a valve-like arrangement sometimes met with in Disease of the Uterine Cervix of Cows," and in which he refers to an article by me appearing in the above journal of January 14th, I feel flattered that one of such keen critical observation as Mr. Harvey should entirely agree with some of my statements in the article referred to. However, I am afraid Mr. Harvey has made an error when he says, "In the cow the circular folds of mucous membrane of cervix are four or five in number, the anterior and posterior ones being usually the best developed." In the normal healthy cervix there are only three circular folds of mucous membrane. These are best seen on examination *post-mortem* of the healthy virgin uterus. On observing the cervical canal it is noticed that its floor takes the form of an undulating plane, the undulations being formed by the three circular folds of mucous membrane. One cannot accept as the normal standard the anatomical appearance of a porous cervix, and especially so when the placenta has been retained, for in the former the mucous membrane may show a distorted appearance due to lacerations caused at a previous parturition and in the latter there is almost constantly a cervicitis associated with the endometritis and placentitis which are responsible for retention of membranes. When a cervicitis is present the cervical mucous membrane may, due to its hypertrophy, become distorted into a variety of shapes; causing a very tortuous condition of the cervical canal. I have met with cases of this kind where the canal was very restricted and so tortuous that it took me over an hour to pass a flexible probe into the uterus. In treating any condition of the uterus which requires instrumentation I always pass a flexible probe through the cervical canal before introducing the cervical dilator. By adopting this procedure one can later ascertain the various windings of canal. In reply to Mr. Harvey's query *re* the above condition of cervix, I

may say cervicitis and its attendant abnormal conditions are very prevalent in uterine troubles. In all cases of uterine diseases it is necessary to dilate the cervix before attempting treatment, because the cervix may be tightly closed, yet the body and horns of uterus may be in a relaxed paretic condition, unable to constrict and cause expulsion of its contents; the emptying of uterine contents is also prevented by closure of the os. Of late I am paying attention to the action of the various endocrine secretions upon gestation and the various diseases of the generative organs, and find these conditions greatly influenced for better or worse by the stability or instability of the various ductless glands responsible for endocrine secretions. Except for a brief period after parturition, when the os is unduly dilated, it is impossible to apply intra-uterine medication without the use of proper instruments. Unfortunately, those instruments are not procurable in this country. They consist of vaginal dilator, uterine dilator, modified Bozeman's catheters of various sizes, rubber intra-uterine catheters, which are used for pushing into the extreme anterior part of uterine horn, uterine retraction forceps, and a cervical dressing forceps. I am willing to send the above instruments for demonstration to any of the veterinary societies whose secretary may request me to do so.—Yours truly,

L. C. MAGUIRE, Capt., F.R.C.V.S.

Barrow Elm House, Fairford, Glos.

Humane Slaughtering.

Sir,—An impression has gained ground in many quarters that the Ministry of Health is indefinitely withholding sanction to the Humane Slaughtering Clause 9 (b). It is just as well to let it be known that the Reading decision of the 13th January has been referred to the High Court of Justice. The Minister of Health's attitude is clearly defined in the following sentence in a letter from the Minister to the undersigned:—

"When the decision of the Reading Justices has been reviewed by a Superior Court, the Minister's course of action will be guided by the judgments which may have been delivered."

Thus, if the High Court decide that the clause is reasonable, the Ministry would resume sanctioning the said clause.

Further, from enquiries that we have made in official quarters as to a reported statement that 9 (b) is to be suspended at the instance of certain parties, we have definitely ascertained that the statement reported is untrue.

I trust that all who are working to save needless suffering to animals by means of the said clause will not be deterred by the present inevitable uncertainty. Councils who desire the clause to be enforced might reasonably adopt it without delay, on the understanding that the Ministry of Health's sanction be sought if the clause is maintained by decision of the High Court and as soon as such a decision is made known.—Yours faithfully, E. G. FAIRHOLME (Captain), Chief Secretary Royal Society for the Prevention of Cruelty to Animals.

105 Jermyn Street, London, S.W.1, 23*rd March*, 1922.

Army Veterinary Service.

LONDON GAZETTE. WAR OFFICE. TERRITORIAL ARMY.

March 16th.—Capt. J. H. Lockwood (late Vety. Capt., Imp. Yeo.), relinquishes his commn. (March 17th), under A.O. 166/21, as amended by A.O. 332/21, and retains the rank of Capt.

Diseases of Animals Acts, 1894 to 1914. Summary of Returns.

Period.	Rabies. Cases Confirmed. Dogs.	Rabies. Cases Confirmed. Other Animals.	Anthrax. Outbreaks confirmed.	Anthrax. Animals attacked.	Foot-and-Mouth Disease. Outbreaks confirmed.	Foot-and-Mouth Disease. Animals slaught'd as diseased or exposed to infection.	Glanders (including Farcy).* Outbreaks reported by the Local Authorities.	Glanders (including Farcy).* Animals attacked.	Parasitic Mange. Outbreaks reported by the Local Authorities.	Parasitic Mange. Animals attacked.	Sheep Scab. Outbreaks reported by the Local Authorities.	Swine Fever. Outbreaks confirmed.	Swine Fever. Swine slaughtered as diseased or exposed to infection
GT. BRITAIN.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended 18th March, 1922	...	...	11	13	30	1845	...	...	43	53	14	12	3
Corresponding Week in 1921	1	...	14	15	...	...	...	...	59	85	18	17	3
1920	...	...	11	12	...	...	1	1	98	185	9	29	15
1919	3	...	3	3	2	32	...	...	152	272	6	38	15
Total for 11 weeks, 1922 ...	...	...	137	152	1028	48097	...	...	470	724	347	272	95
Corresponding period in 1921	15	1	157	183	24	2326	2	5	922	1483	303	239	57
1920	3	...	104	133	39	2001	9	16	1608	2927	232	476	171
1919	22	2	43	61	19	1033	1	1	1845	3740	177	238	84

NOTE.—The figures for the current year are approximate only. *Excluding outbreaks in Army horses.

IRELAND.													
Week ended 18th March, 1922	...	...	...	...	...	...	...	...	Outbreaks 1		5	4	18
Corresponding Week in 1921 ...	...	...	...	...	...	...	...	...	1		2	...	18
1920 ...	...	...	...	...	...	...	...	...	6		7	...	...
1919 ...	...	...	...	...	...	...	...	...	3		5	1	5
Total for 11 weeks, 1922	...	...	...	...	...	...	...	...	44		71	62	368
Corresponding period in 1921 ...	...	...	2	41	...	...	...	...	29		106	17	122
1920 ...	...	...	...	...	1	3	47		104	2	4		
1919 ...	...	...	...	...	1	1	38		103	13	47		

NOTE.—The figures for the current year are approximate only.